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SO ARE WE!

INSIDE

How to win back your privacy and sanity

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COVER ILLUSTRATION BY JOE DARROW

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PHOTO (WINDOWS): JOHN WALSH/CONSUMER REPORTS

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End Robocalls, Test CBD

ONE THING ALL OF US can agree on today: We're fed up with robocalls. How many times a day must we fend off scammers and spammers trying to sell us fake goods and services, or trying to scare us into handing over our Social Security number? Last year, Americans received a record 48 billion robocalls—that's an average of 1,500 calls every single second. And though certain prerecorded calls provide helpful reminders about upcoming doctors' appointments or the need to vote, most are decidedly unwelcome and untrustworthy.

CR has been in this fight for years, working alongside the Federal Trade Commission and the Federal Communications Commission to crack down on robocalls and win restitution for consumers. While we've helped to secure a number of victories along the way, the maddening truth is that the number of calls only continues to soar. This month, we're encouraging you to join with us to tell the FCC to put an end to robocalls once and for all. Meanwhile, we're sharing the best stopgaps against the barrage of these irritating intrusions—including screening tools, blocking apps, and new plans being offered by carriers.

We're also taking a close look at and asking questions about CBD, the widely used cannabis compound that is turning up in more and more products—from lotions and oils to coffee and beer—promising relief from anxiety and pain. (See our article "CBD Goes Mainstream," on page 44.) CBD may have the potential to deliver many benefits, but only if we have confidence in the products we buy. We want to know, is it safe? Is it labeled accurately? To answer these questions and more, CR would like to undertake the most ambitious safety testing of CBD-infused products ever. Our testing would make sure these products contain what their labels claim and aren't contaminated with potentially harmful substances. If you want to support our work to test CBD-infused products and educate consumers about their safety, join the effort at **CRTestsCBD.com**.

Marta Tellado

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PHOTO: MELANIE DUNEA

Recalling a Deadly Dresser

WHAT'S AT STAKE

In late 2016, Kayli and Ricky Shoff of Orem, Utah, posted a nanny-cam video online of their 2-year-old twin boys as a warning to other parents. The frightening footage, now viewed more than 17 million times, shows Brock and Bowdy climbing on a dresser, which then tips over, pinning Brock. After two difficult-to-watch minutes, Bowdy manages to nudge the heavy piece of furniture just enough to let Brock slide out unharmed.

But the dresser remained on the market. Five months later, the same dresser model—Ikea's eight-drawer Hemnes—fell on another 2-year-old, Conner DeLong, who did not survive. A lawsuit between the family and Ikea was recently settled.

Despite the tragedy, Ikea has not recalled the dresser, pointing to the fact that it meets a voluntary stability standard established through ASTM International, an independent organization that includes industry, government agencies, and consumer groups. (CR is a member.)

HOW CR HAS YOUR BACK

It took years of lawsuits, media attention, and negotiations before Ikea recalled several of its other dressers linked to tip-overs, including its Malm line, in June 2016. CR had pushed for that recall and has since been critical of Ikea for inadequately publicizing it.

We're now calling on the company to stop selling its eight-drawer Hemnes. "Ikea should contact owners and offer a refund in exchange for getting it out of their homes," says CR senior policy analyst William Wallace. "If Ikea won't take this action on its own, the government should intervene."

We also believe regulators should set stronger, mandatory tip-over testing standards. Meanwhile, we're urging the industry to strengthen the current voluntary standard.

WHAT YOU CAN DO

If you own an Ikea dresser, call 866-856-4532 or go to ikea.com to see whether it's been recalled. And go to **CR.org/tipover** to learn more about furniture tip-overs.

Limiting Heavy Metals in Juice

WHAT'S AT STAKE

In our March 2019 article "The Risk in Your Fruit Juice," we reported on our tests of 45 popular juices sold across the country, which showed worrisome levels of inorganic arsenic, cadmium, and lead in almost half. Kids are especially vulnerable, but heavy metals can harm adults, too.

One way to reduce exposure to heavy metals would be government-established limits, but few exist. In 2013, partly in response to an earlier CR report, the Food and Drug Administration proposed limiting inorganic arsenic in apple juice to 10 parts per billion (ppb), the federal arsenic standard for drinking water. The FDA told CR the limit would be set by the end of 2018. But it's still not in place.

The FDA does have a guideline for lead in juice—50 ppb—but we think it should be much lower. And the agency has no limit for cadmium.

HOW CR HAS YOUR BACK

We recently sent the FDA a list of recommendations. Among them: It should set a long-term goal of no measurable amounts of heavy metals in fruit juice. (The FDA told CR it would review our data "as part of our larger, comprehensive effort to reduce toxic element exposure.") We also shared our results with members of Congress, and three senators wrote the FDA calling for standards to "strictly limit heavy metals in children's food, including fruit juices."

WHAT YOU CAN DO

For a list of juice products that contain comparatively high levels of heavy metals, as well as better alternatives, go to **CR.org/heavymetals0519**.

Think Before You Drink CR's tests revealed potentially harmful levels of heavy metals in some juices.

Shutting Down Pyramid Scams

WHAT'S AT STAKE

It's an all-too-common story: What starts as an offer from a friend or neighbor to sell you a product—anything from energy drinks to skin care lotions—turns into an "opportunity" to make money by becoming a "distributor" and selling the product yourself. Because the pitch comes from someone you know, maybe you buy in. But it turns out to be an age-old scam known as a pyramid scheme, where only people at the very top of the structure profit, and the rest are left holding the bag.

Not all "multilevel marketers" (as these companies are known) are bogus, but the shady ones have a few things in common: huge pressure to buy a lot of product up front and to recruit new "distributors," and a compensation system that emphasizes recruiting rather than actual product sales.

HOW CR HAS YOUR BACK

Historically, the Federal Trade Commission has done a good job shutting down pyramid schemes. But some direct marketing companies are now pushing for a new law they are calling the Anti-Pyramid Promotional Scheme Act. Belying its name, the law would actually make it harder for the FTC to stop all but the most blatant scams. Former FTC officials from both political parties—and even top direct selling companies—oppose it. CR helped quash the bill in 2018. And now we are working to prevent it from being re-introduced this year.

WHAT YOU CAN DO

Contact your members of Congress via congress.gov and tell them to oppose the deceptively named Anti-Pyramid Promotional Scheme Act.

ILLUSTRATION BY JOHN RITTER

Our February 2019 article **"Are We at a Tipping Point?"** tackled the mysteries of who and how much to tip across a wide range of services. Readers eagerly shared advice and opinions. To join in, go to **CR.org/tips0519**.

THANK YOU SO MUCH for the tipping guide. I found it very helpful, and I learned from it. Having recently had a mattress delivered, I'm embarrassed to say I did not tip the delivery personnel. I pride myself on being a good tipper, but this one escaped me. Now I know. A suggestion: I leave a small, handwritten thank-you note for the housekeeping staff at any hotel where I stay. It's a small gesture that doesn't cost anything and goes well with any monetary tip you can leave.
–Laura Horah, Newark, DE

MANY AMERICANS just aren't sure who to tip and how much.

WRITE

Go to **CR.org/lettertoeditor** to share your comments for publication.

I agree that there needs to be a new system. I was astounded to read that some workers make as little as $2.13 per hour! I was equally astounded to learn that some workers in upscale restaurants make more per hour than a college graduate.
–Peggy Horn, Tehachapi, CA

THANK YOU for the fantastic article and history on tipping! It's been a great source of information for my family.
–Tim Kendrick, Chicago

IN REGARD to your article, it is true that the practice of tipping has gone from rewarding a person for giving you excellent service to subsidizing the salary of an underpaid worker.
–Tom Guarro, Brandon, FL

YOUR ARTICLE SAYS that one should leave a tip on the pretax bill total; however, many bills come with suggested tips of 15 percent, 18 percent, and 20 percent, all of which, in my experience, are calculated on the posttax total, something readers should be aware of.
–Joe Gawel, Westmont, IL

YOUR ARTICLE about tipping was excellent and very helpful. One thing you did not mention was tipping the hostess or other person when you pick up a carryout order at a restaurant. My niece is a hostess at a high-end restaurant. She has gotten me to not only tip for carryout orders but for counter service at other food establishments. She says the people who work there need the tip money.
–Emma Ledbetter, Cashton, WI

IN YOUR ARTICLE, you suggest the restaurant server's tip should be a percentage of the bill. If the service is the same for an expensive restaurant and an inexpensive one, basing the tip on the bill would be unfair to the server that provided excellent service in an inexpensive restaurant. There must be an alternative method to estimate the tip.
–Mohsen Shoukri, Glen Allen, VA

TIPPING'S MAIN PURPOSE is to let employers off the hook with regard to paying a decent wage. The consumer should not have to supplement an employee's income by paying more than the stated price for a meal or other service. The best way to solve the tipping issue is to eliminate tipping and add the cost of labor to the price of the good or service like most companies do. Servers and others who depend on tips will now have a stable income. The only time a tip is warranted is when someone has gone above and beyond to assist you.
–Beverly Rice, Charlotte, NC

The Sound of Silence

IN YOUR ARTICLE "The Science of Sound" (February 2019), you left out a common household appliance that many people routinely use ... the handheld hair dryer. It's used right next to your ears for an extended period of time, and you can't use noise-canceling headphones while using it. I put foam earplugs in when I use my hair dryer.
–Martha Callahan, Basking Ridge, NJ

YOUR ARTICLE reminded me of my work as a registered nurse in the intensive care unit. Every piece of equipment that we used had multiple alarms. Not only were my patients bombarded with multiple noises, beeps, and buzzes, but the staff was, too. Studies have been done regarding "alarm fatigue" and its affects on healthcare employees.
–Therese Monse, Coppell, TX

REGARDING YOUR TIP to schedule a dishwasher cycle for after you've gone to bed, in "Quiet Down Your House," I once had a hose separate under the sink while running the

dishwasher. If I had not been there to stop it, I would have had a flood. It's prudent to be nearby when using appliances for which a malfunction could lead to flood or fire.
–Betty Lobos, Concord, CA

KUDOS ON A NICE ARTICLE on noise and its effects. You neglected to mention pets as a source of damaging noise in the household. For example, my sister-in-law's small dog barks for 2 or 3 minutes when people arrive. Using an app, I measured the dog's noise, and her barking consistently elicited 95 decibels of sound pressure.
–Edward Kausel, Wellesley Hills, MA

Nuts About Nuts

REGARDING "The Best Nuts for Your Health" (Product Update, February 2019): I am very picky about the nuts I eat. I buy raw nuts in large bags rather than heavily salted and adulterated snacking nuts. I place them on a cookie sheet and roast them in the oven at 400° F for 8 minutes, and control the amount of crunch and salt.
–Bill Prokopchak, Winchester, VA

YOUR PRODUCT UPDATE on nuts didn't mention raw almonds or other raw nuts as the healthier choice. Why was that? One ounce of raw almonds, according to the website CalorieKing, has 164 calories, 14.4 grams of fat (1.1 gram saturated), 6 grams of protein, 5.6 grams of carbohydrates, 3.3 grams of fiber, 1.4 grams of sugar, and 0 mg of sodium.
–Cliff Corenblith, Dallas

EDITOR'S NOTE *Both raw almonds and roasted unflavored (whether dry-roasted or oil-roasted) almonds are a healthy choice. They each have approximately the same amount of calories, fat, saturated fat, protein, fiber, vitamins, and minerals. However, roasted nuts are often sold salted and sometimes flavored (such as honey-roasted), which alters their calorie, sodium, and/or sugars content.*

The ABCs of Better Z's

YOUR COVER STORY, "Get Your Best Rest Yet!" (March 2019), had wonderful details on mattresses, pillows, and sheets, but you forgot to mention the one small furry detail pictured on your cover: that little pug with the couple in bed! Anyone who owns a dog knows they are total bed hogs! Love the furry hot water bottles, but give them their own dog bed, keep them out of yours, and that's one way to get a good's night sleep.
–Amanda Lobaugh, Rochester, NY

EDITOR'S NOTE *You're right! Our cute cover pug, Luna, who naturally was pushing her (model) owners to make room for herself, was there to demonstrate just this problem.*

IN YOUR ARTICLE, you referenced comments from an expert about sleep pillows. I went to his website and discovered he carried the perfect solution for a stomach sleeper to convert to a side and back sleeper, and thus alleviate longtime neck pain I'd suffered. This recommendation was supported by my physician.
–Heather O'Brophy, Rio Vista, CA

EDITOR'S NOTE *We're glad you found a solution. Our labs are looking into the possibility of testing pillows in the hope that we can help even more readers find their perfect pillow in the future.*

YOUR ARTICLE about mattresses should have mentioned smell. A foam mattress that we bought a couple of years ago had strong chemical fumes that filled our apartment and smelled awful. We had to return it.
–Gerard Mryglot, New York City

Car TLC

YOUR ARTICLE "Can You Trust Your Auto Repair Shop?" (February 2019) was excellent but missed some valid information in your discussion of haggling and discounts. I owned an auto repair shop for 28 years. I regularly took customers into the shop area to show them why their car needed front brakes but not rotors, and to compare new parts with their old ones. I wanted to instill confidence in them. After my doing this, why haggle with me over price? Your readers should find a mechanic or shop owner who will discuss with them the details of the repairs needed, and then they can decide if haggling is really called for.
–Steven Plotkin, Monticello, NY

YOUR ARTICLE left out one of the most important aspects of quality repairs: the tech who is actually doing the work on your car. You should try to have a personal rapport with these people. They are the ones doing the work. If they are really good, you should follow them wherever they go. Your loyalty should be to them, not the place they are employed–unless they are also the owner! Follow the tech!
–Hand Schuman, Canyon County, CA

AUTO REPAIR ADVICE

If your auto tech is really good, you should follow them wherever they go. They're the ones doing the work, not the shop owner.

–Hand Schuman, Canyon County, CA

Clever Camera

KUDOS REGARDING YOUR article "Self-Cleaning Car Cameras" (CR Insights, March 2019). But you may be unaware of VW's even more elegant solution to the problem of backup cameras exposed to the elements: Don't even expose them. My 2016 GTI deploys the backup camera lens by tilting open the rear hatch's VW badge when engaging reverse gear and then shields the lens by closing the badge when shifting out of reverse. No messy spray and a great image no matter the weather!
–Chris Siebras, Stuart, IA

EDITOR'S NOTE *It is a neat setup, and it's not just on Volkswagens: Certain BMW and Mercedes-Benz models have a similar feature. The only downside is that it can be noisy when deployed.*

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What We're Testing in Our Labs ...

In our 63 labs, we continually review and rate products. Here, timely picks for this month.

Performance All-Season Tires

WE TESTED: 25 models
WE TEST FOR: Braking in dry, wet, and icy conditions; handling, including steering feel; ride comfort; noise; rolling resistance; tread life; and more.

ABOUT THE SCORES:
Median: 59
Range: 46-75

Best Overall Performance
Michelin CrossClimate +
$171

75 OVERALL SCORE

Long Tread Life
Continental PureContact LS
$128

71 OVERALL SCORE

Deal on Wheels
General Altimax RT43 (V)
$99

66 OVERALL SCORE

Gas Pressure Washers

WE TESTED: 14 models
WE TEST FOR: Versatility and efficiency in cleaning a range of surfaces, including concrete and decking; pressure; noise levels; and ease of use.

ABOUT THE SCORES:
Median: 73
Range: 60-78

Easy Push-Button Electric Start
Ryobi
RY803111
$390

77 OVERALL SCORE

Terrific Turbo Nozzle
Generac 10000006882
$350

76 OVERALL SCORE

Quietest Cleaner
Briggs & Stratton 020569-0
$380

70 OVERALL SCORE

Ask Our Experts

Should I buy a pressure washer or does it make more sense just to rent one?

"If you'll use a pressure washer three times or more each year, it can pay to own," says Dave Trezza, a CR testing leader. A rental from a home center ranges from $40 to $100 per day. Buying an electric model costs about $100 to $200, and a gas model costs $300 to $600. You may find frequent small jobs for an electric model, such as cleaning mildew from patio furniture. Ownership of large gas machines–good for long-neglected decks and dirty siding–requires engine maintenance and room for storage, which can make renting appealing. Whatever you choose, CR cautions against using a zero-degree cleaning nozzle. And always wear closed shoes, long pants, and protective gear on eyes and ears.

ILLUSTRATION: SERGE BLOCH

For the latest ratings of these and other product categories, readers with a Digital or All-Access membership can go to CR.org.

Air Mattresses

WE TESTED: 8 models
WE TEST FOR: How much a mattress sinks under a heavy load over 15 minutes, speed of inflation, and more.

ABOUT THE SCORES:
Double
Median: 67. Range: 43-81
Single
Median: 68. Range: 64-81

Comfiest for House Guests
Simmons Beautyrest Hi Loft Raised
$68

81 OVERALL SCORE

Fast Inflation
Aerobed Classic Inflatable
$100

81 OVERALL SCORE

A Bargain for Camping
Coleman QuickBed Single High
$27

72 OVERALL SCORE

Blu-ray Players

WE TESTED: 17 models
WE TEST FOR: Picture quality; ease of use; disc-loading speed; useful features, such as audio/video outputs and content services; and more.

ABOUT THE SCORES:
4K
Median: 72. Range: 59-82
HD
Median: 69. Range: 59-73

4K and Fast Disc Loading
LG UBK90
$180

82 OVERALL SCORE

4K and Very Versatile
Sony UBP-X700 (two HDMI ports) $200

73 OVERALL SCORE

A Nice Price for HD
LG BP350
$75

71 OVERALL SCORE

Dishwashers Under $500

WE TESTED: 8 models
WE TEST FOR: How well a model cleans a full load of dishes with baked-on food, how thoroughly it dries items, noise levels, and more.

ABOUT THE SCORES:
Median: 64
Range: 37-81

Best Low-Cost Cleaner
Ikea Renlig IUD7070DS
$380

81 OVERALL SCORE

Adjustable Upper Rack
Kenmore 13473
$450

75 OVERALL SCORE

A Reliable Brand
Whirlpool WDF330PAHS
$480

71 OVERALL SCORE

Budget-Friendly Dishwashing Detergents

WE TESTED: 18 products
WE TEST FOR: How well it removes caked-on food from glass dishes and baked-on food from pots, and more.

ABOUT THE SCORES:
Single-Dose
Median: 81. Range: 78-85
Gel
Median: 33. Range: 19-69

Supreme Clean
Kirkland Signature (Costco) Premium Dishwasher Pacs
11 cents per load

85 OVERALL SCORE

Tops for Pots
Member's Mark Ultimate Clean Dishwasher Pacs (Sam's Club) 10 cents per load

83 OVERALL SCORE

Eco-Friendly Gel
Palmolive Eco +
7 cents per load

69 OVERALL SCORE

Note: *We rate different products according to different testing protocols. As a result, Overall Scores of one product category are not comparable with another.*

COMING NEXT MONTH Dehumidifiers & More

Is there any way to remove harmful bacteria, such as E. coli, from lettuce?

With three E. coli outbreaks in 2018 linked to leafy greens, specifically romaine lettuce, this is an important question.

Equally important is understanding that there's not much you can do to protect yourself from contaminated raw lettuce—other than not eating it. Rinsing lettuce in water (or washing it with a combination of water and baking soda) may help remove pesticide residue, surface dirt, and debris, but it will do nothing to remove E. coli or other bacteria.

"It's very difficult to remove bacteria from leafy greens," says James E. Rogers, Ph.D., director of food safety, testing, and research at CR. "Bacteria have the ability to adhere to microscopic crevices in leaves." And it doesn't take much bacteria to make you sick.

There's another precaution you can take: Cook greens such as spinach and kale to 160° F—which will kill bacteria. But unlike cooking meat, you can't use a thermometer to make sure your greens reach that safe temperature. However, "if you cook greens until they are fully wilted, it's likely they've been heated enough to be safe to eat," Rogers says.

Still, when there's a recall, the safest thing to do is to toss the offending food. You can stay on top of outbreaks by following @US_FDA and @FDAfood on Twitter.

LEARN

We have more than 140 in-house experts who research, test, and compare. Submit your questions at CR.org/askourexperts ... and watch for the answers.

My fridge is making smelly ice—what's wrong?

If your icemaker is producing funky-smelling ice, it's very likely that you have a fridge with a single evaporator, which is common in most refrigerators. That means that in order to cool your food, air moves between the fresh-food and freezer compartments—and carries odors with it.

"We conducted a test on a single-evaporator refrigerator where we filled the fresh-food compartment with garlic, then made ice in the freezer," says Joe Pacella, CR's refrigerator test engineer. "Sure enough, the ice didn't just smell like garlic—it tasted like it."

To avoid icky ice, clean the ice collection bin according to the manufacturer's instructions; usually a mixture of baking soda and warm water will do. Then put baking soda boxes in both the fresh-food and freezer compartments, as close to the icemaker as possible. These will absorb food odors to minimize their travel into the icemaker.

Next time you shop for a fridge, consider upgrading to one with a dual evaporator, typically found only on more expensive units. That means the fresh-food and freezer compartments have their own dedicated evaporators, and no air passes between the two spaces, leaving your ice odor-free.

I want to free up cash for a renovation. Is a cash-out refinance a good idea?

In a cash-out refinance, you agree to a new mortgage on your home that's larger than your current mortgage balance, explains Tobie Stanger, senior money editor. "Unless the new interest rate is much lower, it can be a pricey way to borrow."

A cash-out refi's closing costs are essentially the same as with any mortgage—and those costs apply to the entire loan, not just to the extra amount you're borrowing. "This can add to your costs significantly," Stanger cautions. What's more, "you'd also be starting the mortgage clock over, so it could take you longer to pay off the debt."

If the amount you want to borrow is less than your current mortgage balance, consider other options that typically involve lower fees and take less paperwork and processing time: Home equity loans and home equity lines of credit (HELOCs) let you keep your first mortgage and take out a second loan for that amount. A home equity loan provides a lump sum that you begin repaying over a fixed period of time. A HELOC is a credit line; you borrow from it as needed and pay interest only on what you've borrowed. But a HELOC has a floating rate of interest, which means you run the risk of that rate climbing higher over time.

ILLUSTRATIONS BY SERGE BLOCH

CR Insights

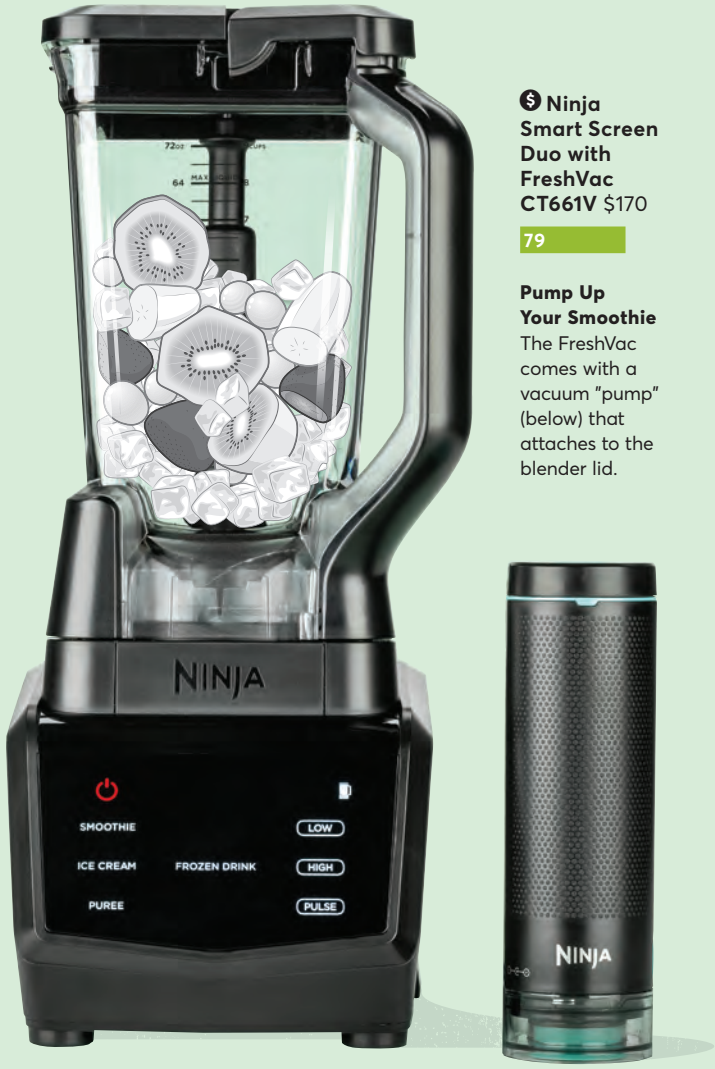
In the Know

How to Make a Better Smoothie

WANT TO KNOW the verdict on whether vacuum blenders can whip up a more desirable smoothie? For the uninitiated, a vacuum blender looks just like a full-sized blender (that's the term to find them with on CR.org)—but with a "vacuum" mode that sucks out oxygen from the pitcher before blending begins. The goal is to serve up smoother, less bubbly smoothies, soups, and sauces. Some manufacturers even claim that less air helps preserve the food's nutrients better. (Though some nutrients in fresh produce are indeed diminished slightly by oxygen, we did not test this nutritional claim.)

Our testers evaluated four vacuum blenders, ranging from about $150 to $650, to see how they handled an icy drink. "In vacuum mode, all four made smoothies that were smoother, less foamy, and more consistent in texture than the smoothies we made in regular mode," says Cindy Fisher, a CR test leader. They also earned a Very Good or Excellent score in our standard tests for puréeing soup and crushing ice. That's above-average performance for any blender—though it's worth noting that we've tested a few highly rated non-vacuum blenders that made similar or better smoothies than those with a vacuum.

For example, when making a strawberry, banana, kiwi, grape, and ice smoothie, the Vitamix 5200 ($450, not shown), which does not have a vacuum, made a slightly smoother drink than the Ninja with FreshVac (at right). Still, with very similar performance at less than half the price of the Vitamix, the vacuum-equipped Ninja is a nice option.



$ Ninja Smart Screen Duo with FreshVac CT661V $170

79

Pump Up Your Smoothie
The FreshVac comes with a vacuum "pump" (below) that attaches to the blender lid.

ILLUSTRATIONS: CHRIS PHILPOT. PHOTO: JOHN WALSH/CONSUMER REPORTS

MORE SMOOTH OPERATORS

LONG WARRANTY (15 YR.)
Tribest Dynapro Commercial Vacuum DPS-1050 $495

75

POWERFUL PURÉE
Kuvings Vacuum SV500S $650

73

BARGAIN BUY
Dash Cold Fusion Vacuum DVB300RMRD $150

67

For more ratings, Digital and All-Access members can go to CR.org/blenders.

BEST FOR
$20 OR LESS

Headphones

Looking for a set of budget-friendly earbuds that delivers very good sound? Our testing results show that these low-cost in-ear sets are worth a listen.

DESIGNED FOR EXERCISE
Scosche SportFlex 3 $15
(pictured above)
76 OVERALL SCORE

COMFY FIT
Panasonic RP-TCM125 $15
66 OVERALL SCORE

BLUETOOTH WIRELESS
JVC HA-FX9BT Gumy Wireless $20
66 OVERALL SCORE

ROCKIN' PRICE
MEE audio RX18P $10
61 OVERALL SCORE

SCORES FOR ALL 153 PORTABLE STEREO HEADPHONES WE TESTED:
Median: 46 Range: 21-86

How to Clean Practically Anything™

Let the Sun Shine In

Spring clean your windows following our simple step-by-step guide.

PICK A CLOUDY DAY
Or choose a time of day when you'll have shade. In direct sunlight, glass heats up and your cleaning solution may dry too quickly, causing streaking.

START WITH WINDOW FRAMES AND CHANNELS
Vacuum out any debris, such as dead insects, from the runners of your window frames. Then wash painted or vinyl frames with a sponge dipped in warm water and detergent. Rinse with warm, clean water, and towel dry well. To keep your windows sliding smoothly in their tracks, lightly oil the window channels with multipurpose drip oil (found at hardware stores) or a silicone car polish (such as those made by Amway). Car polish can also be used to buff aluminum frames.

SPONGE THE GLASS FROM TOP TO BOTTOM
Starting with the top panes will prevent accidental drip marks on areas you've already cleaned. Apply the cleaning solution with a spray or damp sponge, then wipe the solution off the window with

CR Time Traveler ICE CREAM

1923 Good Humor founder Harry Burt patents the first ice cream treat on a stick.

1928 Candy maker Joseph Edy and ice cream maker William Dreyer create Edy's and Dreyer's Ice Cream. A year later, the company creates the iconic flavor "Rocky Road."

1939 CR reports that some ice cream is not clean. Of the 196 samples we test, 27 percent contain "bacteria associated with sewage."

1944 We perform blind taste tests on 12 brands of at-home ice cream mixes—made from powder or concentrate. A few, such as Jell-O Freezing Mix, taste good, but other brands, including a Kool-Aid Mix, are "unacceptable."

1959 We perform lab tests on "America's favorite dessert" (below, our lab is set up to weigh ice creams). Then, with the help of dairy experts, we rate 45 brands; Sealtest, Hershey's Early American, and Dolly Madison provide the best quality.

POOR — EXCELLENT | RECOMMENDED | CR BEST BUY

PHOTOS, BOTTOM FROM LEFT: DREYER'S; CONSUMER REPORTS; PHOTO, TOP: ANDERSON CORPORATION

a dampened squeegee blade. Follow this with a rinse of clean water applied with a chamois, then polish off any extra moisture with a dry cloth.

DON'T FORGET THE OUTSIDE PANES

Most new double-hung windows have tilting sashes, a handy feature that lets you pivot the window inward for easier cleaning of the outside glass. With most, you'll see latches on the top of each sash frame to release and tilt in the sash. But with some, you need to manually pull the sash out of the tracks. If your windows don't tilt in, a long-handled squeegee may help you clean them safely.

Need new windows? See "Window Shopping," on page 18.

USE THE RIGHT TOOLS

- vacuum
- two buckets
- sponge
- good-quality rubber squeegee
- lint-free cloth
- chamois cloth
- multipurpose oil
- cleaning solution

Ammonia-based formulas, including some Windex products, may cause streaks or film on some windows, our experts say. Instead, try an ammonia-free formula, such as the one below.

Method Glass + Surface naturally derived glass cleaner $3

CR Money-Saver TOILETS

ARE YOU FLUSHING MONEY DOWN THE DRAIN?

Next time you get your water bill, take a closer look. If you're using in excess of 12,000 gallons a month for a family of four, you're probably paying for water that's dripping right down the drain–and your toilet is probably the culprit. Toilets can leak when the toilet flapper, which plugs the drain between the tank and bowl, or the valve seal, which sits around the drain, becomes worn over time. A good way to check is to put some food coloring in the toilet tank and wait 15 minutes to see whether color shows up in the toilet bowl. If it does, that means the flapper or seal isn't working properly, and water is trickling into the bowl–then down into the pipe–between flushes. You can buy a replacement flapper or valve seal at a hardware store, usually for less than $10; just bring the old part with you for fit comparison.

If your fixture is more than 25 years old, consider replacing it. "Toilets that old can use four times more water per flush than current models," says John Banta, who oversees CR's toilet tests. "New toilets we tested use as little as 1.28 gallons per flush, and that can dramatically reduce your water bill." Though some toilets can cost upward of $400, our tests have shown that you can find very good water-efficient toilets for less than half that price, such as the models below.

TOILETS UNDER $200

68

Niagra Conservation Stealth 77000WHAI1/ N7714 N7717 *(Home Depot)*
$180

66

Aquasource Henshaw 98923 *(Lowe's)*
$100

62

Glacier Bay N2428E *(Home Depot)*
$100

All are WaterSense-certified and use 1.28 gallons per flush or less, on average.

1989 Adults are buying more than a billion dollars' worth of frozen ice cream novelties a year. In CR's blind taste test of 27 ice cream bars, Dove and Häagen-Dazs trounce the competition.

2013 More Greek frozen yogurt is appearing in stores, CR reports, but the four we test have "big sour-dairy flavor and don't taste very good." However, regular vanilla fro-yo passes our tests—with Häagen-Dazs and Blue Bunny products taking the lead.

1978 Ben & Jerry's opens its first ice cream shop in a renovated gas station in Burlington, Vt.

1992 We test soft-serve nonfat frozen yogurt and reveal that frozen yogurt sold as nonfat is sometimes the low-fat or even the full-fat version.

BREYERS ICE CREAM NATURAL VANILLA
$0.48/HALF-CUP

67 OVERALL SCORE

2019 Breyers earns one of our top scores for its taste and creamy texture. Turn to page 32 for even more ratings.

Food Sleuth

Chip & Dip Sodium Swaps

Your Cinco de Mayo celebration wouldn't be complete without crunchy chips and zesty salsa. But those tortilla chips, premade dips, or even just a side of beans could be packing more sodium than you surmised. A handful of chips dunked in premade guacamole could supply hundreds of milligrams of sodium—and can add up quickly. In fact, the average adult consumes 3,400 mg a day, which is about 50 percent more than the daily recommended limit of 2,300. But you don't have to say adios to your favorite festive dishes. As our example swaps show, sodium counts vary widely among brands, so comparing labels can be an easy, effective way to better manage your sodium intake.

TORTILLA CHIPS

115 mg PER OZ.

Tostitos Original Restaurant Style Chips

VS.

55 mg PER OZ.

Tostitos, Lightly Salted

BLACK BEANS

VS.

410 mg PER 1/2 CUP

Goya Black Beans

135 mg PER 1/2 CUP

Goya Low Sodium Black Beans

RINSE TO REDUCE SODIUM

If you don't have a lower-sodium version in your pantry, simply rinse canned beans in a colander with water before using in your recipe, our experts advise, and you'll reduce the sodium by up to 41 percent. If you have time, cooking dried beans from scratch gives you the most control.

TORTILLAS

VS.

400 mg PER TORTILLA

Mission Flour Tortillas Soft Taco, Super Soft

10 mg PER 2 TORTILLAS

Mission White Corn Tortillas, Super Soft

GUACAMOLE

VS.

150 mg PER 2 TBSP.

Sabra Guacamole, Classic

115 mg PER 2 TBSP.

Wholly Avocado Simply Avocado, Sea Salt

SALSA

VS.

230 mg PER 2 TBSP.

Pace Thick & Chunky Salsa, Medium

80 mg PER 2 TBSP.

Green Mountain Gringo Medium Salsa

REFRIED BEANS

VS.

550 mg PER 1/2 CUP

Rosarita Refried Beans, Traditional

190 mg PER 1/2 CUP

Amy's Organic Vegetarian Traditional Refried Beans, Light In Sodium

PHOTOS: JOHN WALSH/CONSUMER REPORTS

MAY IS THE BEST TIME TO BUY ...

DECKING

As the weather warms up, decking prices tend to go down.

EXTERIOR PAINT & WOOD STAINS

Sprucing up? Check spring sales at home improvement stores.

GRILLS

Look for big discounts over Memorial Day weekend.

For more info, go to CR.org/buy0519.

SAFETY UPDATE:
THE DANGERS OF E-SCOOTERS

Battery-powered electric scooters are a growing transportation option in cities. Offered by companies such as Bird and Lime, they are typically picked up by consumers wherever the last user left one—on a sidewalk curb, for example—and are rented for a small fee using a smartphone app. E-scooters can travel up to 15 mph, and unfortunately, users rarely wear helmets while riding them.

A recent Consumer Reports investigation estimated that there have been at least 1,500 injuries related to the use of e-scooters across the U.S. since late 2017. Several trauma-center doctors told CR they've been treating serious injuries related to e-scooters, from concussions to fractures—and at least four fatalities have been confirmed to date.

"Consumers, scooter companies, cities, helmet makers, and safety regulators must work together to improve the safety of these products," says William Wallace, a senior policy analyst for CR. For now, the best advice that experts, including CR, have for riders is to always wear a helmet.

Both Bird and Lime told CR that safety is paramount and that they recommend helmet use in their apps and offer to send free helmets to users who ask for one.

—Ryan Felton

RECALLS

TO STAY INFORMED ABOUT RECALLS FOR YOUR VEHICLES, READERS WITH MEMBERSHIP CAN USE OUR FREE CAR RECALL TRACKER AT **CR.ORG/MORE**.

DEWALT ELECTRIC DRILLS

DeWalt is recalling about 122,000 DWD110 and DWD112 drills because the wiring can contact internal moving parts and pose a shock hazard. The drills were sold in hardware stores nationwide and online from September 2017 through November 2018 for $60 to $70.
What to do: Stop using the drill. Call DeWalt at 855-752-5259 or go to dewalt.com for model details and to schedule a free inspection and repair.

CVB FOLD-OUT SOFAS

CVB is recalling about 86,000 Lucid folding mattress-sofas because they fail to meet mandatory federal flammability standards for mattresses and pose a fire hazard. The mattresses were sold online from September 2015 through June 2018 for about $130.
What to do: Stop using the mattress. Call Lucid at 888-975-8243 or go to lucidmattress.com for model details and to get a free fitted mattress cover to make it meet federal standards.

CRATE & BARREL MILK BOTTLES

Crate & Barrel is recalling about 17,000 Holiday Bear acrylic milk bottles because the plastic straw that comes with the milk bottle can crack or break, and pose a risk of laceration. The bottles were sold at Crate & Barrel retail stores nationwide and online at crateandbarrel.com from August 2018 through November 2018 for about $5.
What to do: Stop using the milk bottles, and contact Crate & Barrel at crateandbarrel.com or 800-451-8217 to receive a full refund.

DELL POWER ADAPTERS

Dell is recalling about 8,900 hybrid power adapters sold with power banks because the casing can break and detach, exposing metal components and posing risk of an electric shock. The adapters were sold online from February 2017 through August 2018 for $125 to $200.
What to do: Stop using the adapter, and call Dell at 855-305-9057 or go to dellproduct.com for model details and to get instructions for receiving a free replacement.

TARGET TODDLERS' BOOTS

Target is recalling about 33,600 Cat & Jack Unicorn "Chiara" boots because the unicorn horn on the boot can come off and pose a choking hazard to children. The boots were sold at Target stores and website, as well as Google Express, from October 2018 through November 2018 for about $27.
What to do: Take the boots away from children, and call Target at 800-440-0680 or go to target.com for model details. The boots may be returned to any Target store for a full refund.

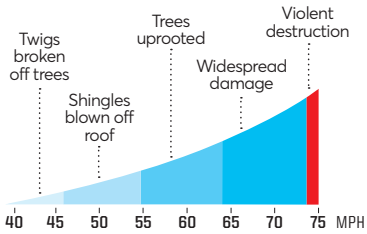
FISHER-PRICE POWER WHEELS

Fisher-Price is recalling about 44,000 Children's Power Wheels Barbie Dream Campers because the wheels can continue to run after the foot pedal is released, posing a risk of injury. The Power Wheels were sold at Walmart stores and website from July 2018 through January 2019 for about $400.
What to do: Stop using the Power Wheels Barbie Dream Camper and take it away from children. You can call Fisher-Price at 800-348-0751 or go to fisher-price.com and click on "Recalls" for more information, such as model details and to arrange a free repair.

Product Update

The latest ratings from our labs

We test windows against high winds. Damage you'll see as speed increases:



Source: Beaufort wind scale.

Window Shopping

Double- or triple-pane? Vinyl or fiberglass frames? To help you see your way clearly to a new set of replacement windows, check our test results and expert insights.

by Haniya Rae

YOU MIGHT FEEL a draft. Or notice that your window sashes are damaged. Maybe the panes fog or condensation collects between them. Or, worse, the frame itself is rotting.

If any of these scenarios are true in your house, there's a good chance you need a new window, or maybe all new windows. But where do you begin? More than likely, with replacement windows.

A replacement window is made-to-measure for an existing window frame and designed to be installed without having to remove the exterior siding or window trim, which would make the job more involved and more expensive. If you're building a new house or planning a remodeling project, you're more likely to be in the market for new-construction windows. If, on the other hand, the neighbor kid's baseball just crashed through a single window pane, the glass can be replaced with what's known as an insert.

For replacement windows, the options for customization can be overwhelming. To help you decide which windows are best for you, we tested 14 replacement windows on the market; interviewed manufacturers, dealers, and installers; and analyzed the return on investment.

How to Get Started

As a consumer, you can browse the window aisle at your local big-box store to orient yourself with brands and styles, but the windows there almost certainly won't fit the window openings you have because there's no standard size.

When you're ready, browse manufacturer websites for ideas, then call a few retailers and window dealers to schedule consultations.

"There is really no way to get a 'general quote,'" says John Jervis, managing director of the American Window and Door Institute. Rather, each seller will conduct a site review of your house—essentially a free consultation with one of its reps, who will take measurements and talk to you about your needs. "During your consultation, a project specialist will come to your home and go over material options, show samples, and ask questions regarding specific requirements for your home," says Steve Anstett, the merchandising director for millwork at Lowe's.

That person should discuss your budget and suggest specs for each window. And not every window requires the same strategy. It might be prudent, for example, to install particularly energy-efficient windows on certain walls of your home based on how much shade or sunlight these walls receive. The consultation might also reveal problems, such as rotted or warped window frames, that would affect the cost or scope of the job.

Decisions That Matter

First, there's the question of frame materials and construction. Wood and fiberglass are excellent insulators. Vinyl frames (the largest portion of the replacement market) can also be good insulators. Be sure to talk to each consultant about whether a particular frame type makes sense for your climate. Aluminum frames are generally inexpensive and durable, but the material is a very poor insulator and is suitable only for temperate areas of the country.

Another choice you'll need to make is how many panes of glass you want. Double-pane glass is standard: The two panes are separated by a spacer, and the cavity is typically filled with argon gas, which adds insulating properties. (The panes have coatings that also help insulate.) You can buy triple-pane windows, which insulate further and cut down drastically on noise. But be wary of overdoing it: "Triple-pane windows are very expensive and may not be worth it unless you're next to an airport or very close to a highway," says Enrique de Paz, Consumer Reports' windows test engineer.

You will want to walk through each of these decisions for each quote—along with choices around aesthetics, functionality, and more. As you might imagine, all these options can swing the price wildly.

You'll probably get an itemized list, detailing the features you've discussed, with one dollar figure: the total, which should include installation. As you're weighing each bid, ask the rep which features you could stand to lose and how that might affect the overall cost.

Once you've made your pick and signed off on the details, the dealer will order windows custom-made to your home's specifications. Then a contractor will install the windows.

Cost and Potential Return

The best windows in our tests range in price from $260 to $580 each for a 3x5-foot window. Installation costs can vary significantly based on the scope of the job. According to an estimate from the National Association of the Remodeling Industry, new replacement vinyl windows cost nearly $19,000, installed, for a 2,450-square-foot home, the national average in 2017. Wood windows set the average homeowner back $35,000.

Keep in mind that you're unlikely to recoup the entire expense in energy savings. New windows may help lower your gas and electric bills a bit, but it would take decades before these savings offset the cost of the windows themselves—even if you opt for highly efficient ones. (See "Making Sense of a Window Sticker," on page 20.)

"A window is literally an energy hole in your wall," de Paz says. "And no matter what coatings you get on

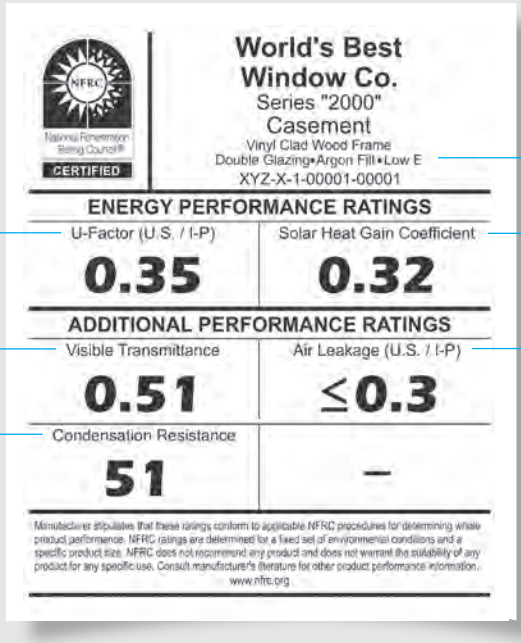
INSIDE CR'S LABS

Enrique de Paz oversees CR's window testing, which includes blasting each window with 100 gallons of water.

PHOTO: JOHN WALSH/CONSUMER REPORTS

Making Sense of a Window Sticker

Window labels are loaded with a variety of ratings and difficult-to-parse jargon. Certain windows carry Energy Star certification, and beyond that, the certification from the National Fenestration Rating Council goes a step further. The organization works with third-party labs to test windows for attributes related to energy efficiency and more. Past tests by CR found NFRC ratings to be accurate and reliable, so we devised our current test procedure (see ratings, on the facing page) to be complementary. Here, we break down the meaning of each figure on the NFRC's sticker.


NFRC
National Fenestration Rating Council
CERTIFIED
World's Best Window Co.
Series "2000" Casement
Vinyl Clad Wood Frame
Double Glazing•Argon Fill•Low E
XYZ-X-1-00001-00001
ENERGY PERFORMANCE RATINGS
U-Factor (U.S. / I-P)
0.35
Solar Heat Gain Coefficient
0.32
ADDITIONAL PERFORMANCE RATINGS
Visible Transmittance
0.51
Air Leakage (U.S. / I-P)
≤0.3
Condensation Resistance
51
–
Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturer's literature for other product performance information.
www.nfrc.org

U-FACTOR

This number represents the heat transfer coefficient, or how much heat the window's coatings help keep inside the home. U-factor ranges from 0.2 to 1.2; the lower the number, the less heat escapes.

VISIBLE TRANSMITTANCE

This is how much visible light will come in through the window during daytime. The range is 0 to 1, and the higher the number, the more visible light passes through. Clear glass without any coatings has the highest VT rating. But coatings that you may add to improve energy efficiency can sacrifice some visible light.

CONDENSATION RESISTANCE

Not every label will carry this optional rating. But for those who live in a humid climate and/or are concerned with mold growth, you may want to look at the condensation resistance rating, which is on a scale from 1 to 100. The higher the number, the better the window is at resisting condensation.

AIR LEAKAGE

This is how much outside air will come through, according to the NFRC's testing. The lower the number, the better. (The range here is less than or equal to 0.1 to 0.3.) "In our tests, we take this a step further by testing at very low temperatures with high wind conditions to see if there are any changes in performance due to materials expanding and contracting," says CR's Enrique de Paz.

GLASS TYPE AND PRODUCT INFORMATION

You'll find a frame type, along with any coatings on the glass (this window has a low-E, or low-emissivity, coating) and the gas that fills the cavity between glass panes (in this case, argon), contributing to the product's overall energy efficiency.

SOLAR HEAT GAIN COEFFICIENT

This number measures how well a product can keep solar heat from penetrating the window. The range is 0 to 1. If you live in a hot, sunny climate, such as Arizona's, you will want a low number to block out heat; if you live in a colder climate, you'll want a high number. If you live in a balanced climate, where winters are cold and summers are hot, you'll want a solar heat gain coefficient rating of around 0.3 (same goes for U-factor). And you may want windows with different ratings for different parts of your house, depending on whether particular windows get a lot of sun or shade.

your glass, an insulated wall is always going to have a much higher insulation value–by a factor of three to five." The insulating value of a double-pane window is comparable to that of an uninsulated wall.

What about resale? The National Association of Realtors estimates that you'd recover nearly 80 percent of the project cost for vinyl and about 60 percent for wood if you were to sell your home soon after installation.

Window Replacement Services

You might have received a direct mailer or seen advertisements touting window replacement services. These services, such as Replacement by Pella or Renewal by Andersen, are an alternative to hiring an independent contractor.

Renewal by Andersen, for example, is Andersen Windows' replacement service. Its products are not sold at retail–customers work with an Andersen representative who handles the entire process, including consulting, generating a quote, and ultimately overseeing the installation. These programs offer peace of mind in the sense that the same company handles everything.

Many major window manufacturers offer a 20-year warranty on the window's glass and a 10-year warranty on other components. Replacement services tend to include a two-year installation warranty, so if a problem arises, repair work is covered. (If you go through a separate dealer and installer, make sure to ask about an installation warranty.)

The service can come at a cost, though: A CR staffer who lives near our Yonkers, N.Y., headquarters received an initial bid from Renewal by Andersen for $24,567, almost twice the amount of a bid from WindowRama, a regional dealer. The homeowner was able to get the Renewal by Andersen cost down to around $16,000 after discounts, and by removing optional grilles and a finer mesh for the window screen.

Recommended	Rank	Brand & Model	Overall Score	Price	Test Results: Wind resistance, 0° F	Test Results: Wind resistance, 70° F	Test Results: Rain resistance
		VINYL REPLACEMENT WINDOWS					
✓	1	**Pella** 350 Series	91	$415	Excellent	Excellent	Excellent
✓	2	**Simonton** Reflections 5500	73	$290	Excellent	Good	Fair
✓	3	**Jeld-Wen** V-2500 Series	69	$300	Good	Excellent	Fair
	4	**Window World** 6000 Series	67	$260	Excellent	Good	Poor
✓	5	**Simonton** Prism Platinum	66	$285	Good	Excellent	Fair
✓	6	**Pella** ThermaStar	64	$260	Good	Good	Fair
✓	7	**Atrium** 8700 Series	64	$375	Good	Good	Fair
	8	**Andersen** American Craftsmen 70 Series Pro	59	$190	Fair	Good	Fair
	9	**ReliaBilt** (Lowe's) 3201 Series	55	$215	Fair	Fair	Fair
	10	**Alside** Mezzo Series	54	$215	Fair	Good	Poor
		WOOD REPLACEMENT WINDOW					
✓	1	**Pella** Lifestyle Series	72	$580	Good	Excellent	Fair
		COMPOSITE REPLACEMENT WINDOWS					
✓	1	**Pella** Impervia	81	$510	Good	Excellent	Excellent
✓	2	**Andersen** A-Series	81	$500	Good	Excellent	Excellent
✓	3	**Andersen** 400 Series Woodwright	64	$530	Fair	Excellent	Fair

HOW WE TEST: We purchased custom-made double-hung, double-pane replacement windows with a low-e coating and a gas fill directly from manufacturers. Each window was ordered to fit a 3x5-foot opening and installed per manufacturers' instructions in a frame designed to replicate the structural opening in the wall of a house. We calculate the **Overall Score** by evaluating a window's wind resistance at 0° F and 70° F, and rain resistance at 70° F. To measure **Wind resistance, 0° F,** we subject a window to simulated wind speeds of 25 mph and 50 mph, while holding the temperature at 0° F, and measure the amount of air leaking through the window with a flowmeter. This same test is repeated, but at room temperature, for our rating for **Wind resistance, 70° F.** For **Rain resistance,** we pelt a window with 5 gallons of water per square foot per hour while slowly increasing wind velocity until water is detected anywhere on the inside of the window. We start at 30 mph, and the velocity can reach a simulated maximum gale force wind speed of 74 mph.

POOR – EXCELLENT | RECOMMENDED

Mad About Robocalls?

So are we! Here, we explain how things got so bad—nearly 50 billion calls a year in the U.S. alone—and what carriers and the government should be doing more of to protect consumers. Plus, learn how you can join with us to fight back.

by Octavio Blanco

ILLUSTRATIONS BY JOE DARROW

Robocalls have become the bane of Carlos Brezina's existence. His phone, he says, rings day and night with them, annoying him to the point where he no longer answers unless he knows for certain who's calling. He has removed a landline from his bedroom. The Bethesda, Md., resident says he's missing important calls from faraway friends and family as a result. Caller ID, he says, is useless, because "call spoofing," which lets scammers' calls come through showing fake numbers that often look local, has become so prevalent.

"I've even gotten calls from myself!" Brezina says of calls that, bizarrely, come in spoofing his phone number.

"Probably around 80 percent of the calls to my cell phone and landline are from bothersome idiots," says Craig Steimling of Belleville, Ill. "It's gotten so that my 5-year-old grandson yells, 'Junk call!' every time the phone rings."

Brezina and Steimling echo the frustration of millions of people who feel their phones are under siege by autodialed spam and scam calls. Consumers shared their stories with us, complaining of chronic calls with suspicious offers for "free" trips and vacations, and of robocallers attempting to bamboozle them into giving up their Social Security number. Some told of being threatened with arrest if they didn't immediately pony up unpaid taxes or settle a debt. They griped about being awakened from sleep by scam calls, of being interrupted while "on the pot," of the amount of time wasted running around the house searching for a ringing phone only to find a robot on the other end. One woman, saying her brother may have "anger issues," described a time he reached his robocall breaking point and shattered his phone with a hammer.

It's enough to make you feel nostalgic for those simpler times, not so long ago, when we were bothered only by human telemarketers hawking insurance or aluminum siding, albeit like clockwork at the family dinner hour.

By every measure, the number of unwanted robocalls to our cell phones and landlines has reached an epidemic level, and if you think the crisis has grown exponentially worse in just the past year, that's because it has. In 2018, a record 48 billion robocalls were placed to phones in the U.S., according to YouMail, a company that blocks and tracks robocalls. That works out to 1,500 robocalls per second—which is 56.8 percent more robocalls than there were in 2017.

The deluge is partly the result of advances in telephone technology that let robocallers autodial thousands of numbers all over the world using VoIP (Voice over Internet Protocol) in seconds for a fraction of what it would have cost just a short

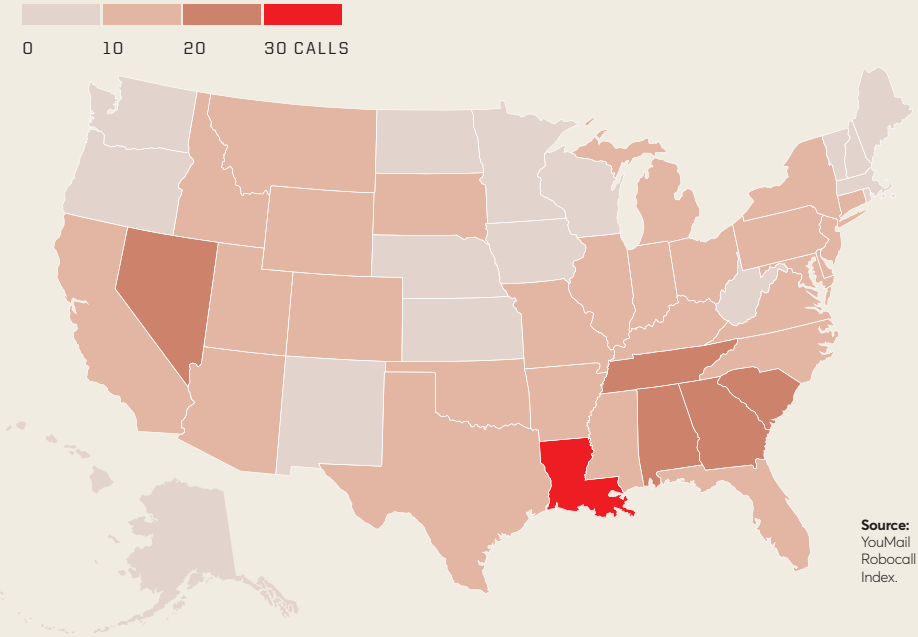
A Robocalls Epidemic

Last year saw a dramatic increase in the number of scam and spam calls to landlines and, increasingly, to mobile phones. In fact, nearly 45 percent of all calls to mobile phones are projected to be scam calls in 2019, according to a projection by First Orion, a provider of call management solutions. Below, the average robocall frequency in 2018, according to robocall tracking company YouMail.

NUMBER OF ROBOCALLS PLACED …

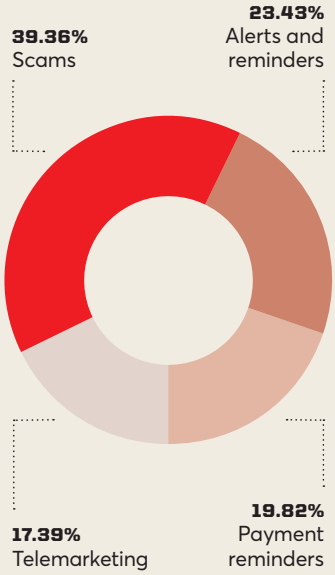
1,517	Per Second
5,461,100	Per Hour
131,066,390	Per Day
3,986,602,683	Per Month
47,839,232,200	Per Year

NUMBER OF ROBOCALLS PER PERSON, BY STATE
DURING DECEMBER 2018



Source: YouMail Robocall Index.

CATEGORIES OF ROBOCALLS
DURING DECEMBER 2018



time ago. “It’s become very easy and cheap to make an enormous number of calls, to the point where you don’t even need technical expertise,” says Alex Quilici, YouMail’s CEO. “If I wanted to pick a borough in New York City and hit every person with a voicemail telling them to go visit some website, I can do it for a couple of thousand bucks.”

But the onslaught is also a function of just how thorny the robocalls problem has been to solve. Wily robocallers seem to stay a few steps ahead of telephone companies and government regulators working to thwart them. The National Do Not Call Registry, for instance, established almost 16 years ago to stop legal telemarketers from calling people who didn’t want to be contacted, has failed to stop the many fraudsters who pay no attention to the list. National contests to find robocall solutions have led to call-blocking services such as Nomorobo, which, though useful, are often limited by the fact that the lists of suspicious numbers they rely on can’t possibly be updated frequently enough and because spoofing numbers has become so commonplace. Criminal robocalling operations have set up call centers abroad, complicating the Federal Trade Commission’s ability to clamp down on them.

As a result, robocalls have today become the largest source of consumer complaints to the FTC, accounting for more than 65 percent of the total. “What’s the level of annoyance that you have to reach with robocalls so that the phone company will do something about it?” asks an exasperated Brezina.

But in fact, some recent developments are cause for optimism. A bipartisan bill co-sponsored by John Thune, R-S.D., and Ed Markey, D-Mass., called the Telephone Robocall Abuse Criminal Enforcement and Deterrence (TRACED) Act was introduced in Congress in January. It seeks to beef up the existing Telephone Consumer Protection Act (TCPA) of 1991 by making fines for intentional robocalling violations bigger and easier for the FCC to obtain.

Consumers could also have a new weapon against spoofed robocalls as early as sometime this year. The telecom industry has promised to roll out new technology that, though not stopping robocalls on its own, would identify calls as potentially fraudulent so that consumers can decide whether to answer. If passed, the TRACED Act will also ensure that phone companies implement this technology.

Technology that identifies calls as spam or scams could be a huge service to consumers like Mike Price, a recovering cancer patient from Denver, N.C., who says he must answer calls from numbers he doesn’t recognize. “I regularly get calls from medical specialists to inform me of test results and upcoming appointments,” he says. “I receive several bogus calls a day, but I’m afraid to not answer the phone.”

Communication Breakdown

Part of what complicates the problem of stopping robocalls, spoofed or otherwise, is that not all of the calls are against the law. Certain legitimate entities, in certain situations, are allowed to make autodialed calls to you. (Just because they’re legitimate, of course, doesn’t mean they’re any less annoying.) The Federal Communications Commission is currently considering a number of proposals related to the TCPA that, depending on what it decides, could result in more robocalls. But for now, here’s the basic playbook, complete with gray areas. It’s also noteworthy that there are more protections against robocalls made to your cell phone than to your landline.

CALLS THAT ARE MOSTLY LEGAL

Political parties and candidates, as well as charities, are legally allowed to autodial you with a prerecorded message to your home landline. The same is true of callers whose messages are purely informational: the pharmacy telling you that your prescription is ready, your child’s school to say there’s a weather delay, your doctor’s office to confirm an appointment.

Autodialed telemarketing calls from legitimate outfits to your home landline are also legally permitted, provided the person on the other end is a human being; for prerecorded messages, your written consent is required. To help consumers who want to avoid these calls is one reason the Do Not Call Registry was created in the first place. Worth knowing: These calls are prohibited before 8 a.m. and after 9 p.m.

Payment reminder calls to your landline–for example, when your credit card company robocalls you to alert you that your payment is due–are generally legal without prior consent. Robocalls from debt collection agencies, which are also payment reminders, are legal to landlines and require no previous consent to be called. Moreover, these calls are not covered by the Do Not Call Registry.

CALLS THAT ARE MOSTLY ILLEGAL

Almost all autodialed or prerecorded calls–even those from charities, political parties, etc.–made to your cell phone are illegal, per the TCPA, unless you have given your express permission beforehand to be contacted this way or the call is for an emergency. If you get these calls to your cell phone and don't remember giving permission, it's possible that you checked a terms-of-service box or provided a phone number during a sign-up process. Doing either can constitute consent to be called, per FCC regulations.

Spoofed calls are illegal if the intent is to commit fraud. Certain spoofed calls are permitted. A women's shelter is allowed to spoof a number to prevent an abuser from knowing a woman's location. Police departments will also disguise their numbers when conducting investigations. Doctors sometimes use spoofing technology to make patient calls from their personal phones to avoid disclosing their private contact information.

HOW CONSUMERS ATTEMPT TO CONTROL THE CHAOS

Data below are from a CR nationally representative survey of 1,002 U.S. adults conducted in December 2018.

WHAT HAVE YOU DONE IN RESPONSE TO ROBOCALLS?

70%
Stopped answering my phone if I don't recognize the number or if the caller's number is anonymous.

62%
Let most calls go to voicemail.

53%
Educated family members about potential threats and scams from robocalls and how to protect themselves.

47%
Registered my phone number on the National Do Not Call Registry.

16%
Started (or continued) using a free robocall-blocking service.

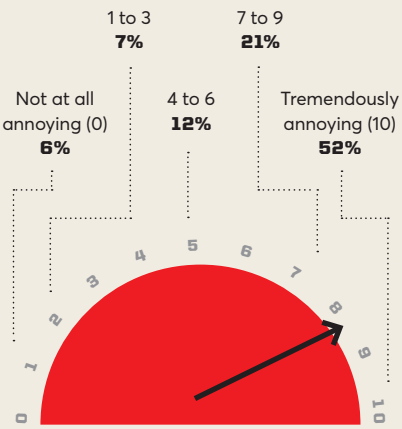
13%
Signed a petition.

11%
Filed a complaint with the FTC.

8%
Started (or continued) using a paid robocall-blocking service.

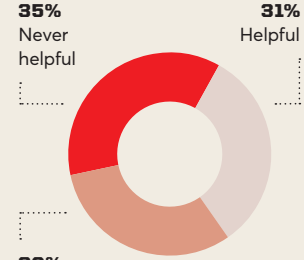
11%
Other.

ON A SCALE OF 0 TO 10, HOW ANNOYING DO YOU FIND ROBOCALLS?



DO CALL-BLOCKING APPS WORK?

Of those who said they use a robocall-blocking service, we asked whether it has been helpful in reducing the number of robocalls they receive.



A Rogues' Gallery of Robocallers

The Federal Trade Commission and the Federal Communications Commission regularly bring actions against robocallers and Do Not Call violators in civil court, often with help from state authorities. Since 2003 the agencies have won more than $1.5 billion in penalties and restitution. But only a small fraction of the money has been recovered, says Maureen Mahoney, policy analyst at Consumer Reports, because the culprits are difficult to track or the profits are spent. Here are some of the FTC and FCC's recent catches.

MALICIOUS SPOOFER

Adrian Abramovich

THE PITCH The telemarketer pushed travel deals said to be from national brands, such as Marriott and TripAdvisor, only to switch the consumers to call centers that would try to sell Mexican timeshare packages, according to the FCC.

THE SCOPE OF THE SCHEME The FCC found that the company spoofed more than 96 million robocalls in just three months. A medical paging company reported that the robocallers were disrupting its service, according to the FCC.

THE JUDGMENT The FCC imposed a $120 million penalty in 2018.

CREDIT CARD CON ARTISTS

All Us Marketing

THE PITCH A web of companies and individuals, formerly operating under the name Payless Solutions, made illegal robocalls pitching a program to lower credit card interest rates.

THE SCOPE OF THE SCHEME The 18 defendants phoned thousands of consumers, including many seniors, claiming they would save at least $2,500 in credit card interest payments with the rate-reduction program. The consumers paid $300 to $4,999 up front but received no rate reductions, according to the FTC and the Florida state attorney general.

THE JUDGMENT In 2017 a court imposed a judgment of $4.9 million on the 12 defendants alleged to be most responsible for the scam. Smaller judgments were imposed on three other defendants. For most, the judgment was entirely or partially suspended based on inability to pay.

RELENTLESS ROBOCALLER

Justin Ramsey

THE PITCH Led companies that blasted out millions of robocalls, often to consumers on the Do Not Call Registry, according to the FTC, offering home security systems and other products.

THE SCOPE OF THE SCHEME Despite an ongoing investigation by the FTC, allegedly continued unlawful telemarketing through a new firm, making more than 800,000 calls to DNC numbers.

THE JUDGMENT Ordered to pay $2.2 million in 2017 to the FTC, suspended upon payment of $65,000, based on inability to pay. Banned from placing robocalls, as well as calling and selling lists of DNC numbers.

INSURANCE TELEMARKETER

Philip Roesel

THE PITCH Marketed health insurance allegedly by targeting vulnerable consumers, including the elderly, the infirm, and low-income people, according to the FCC.

THE SCOPE OF THE SCHEME Using spoofed caller ID numbers, the FCC found that the company made more than 21.5 million robocalls in three months, averaging 200,000 per day.

THE JUDGMENT In 2018, the FCC imposed a forfeiture of $82 million on Roesel and his company.

ROBOCALL RINGLEADER

Kevin Guice

THE PITCH Ran two telemarketing companies and 11 shell companies from a boiler room in Florida. Offered a credit card debt elimination service, charging between $2,500 and almost $26,000 up front.

THE SCOPE OF THE SCHEME Raked in more than $23 million from more than 10,000 consumers, according to the FTC.

THE JUDGMENT Ordered to pay $23 million by a Florida federal court in 2018 for damages and restitution to defrauded consumers. Required to surrender personal property, including a 55-foot yacht, to a court-appointed receiver.

CALIFORNIA SCHEMING

Aaron Michael Jones

THE PITCH A nine-person operation in California led by Jones engineered billions of illegal robocalls, offering extended auto warranties or search engine optimization services, according to the FTC. The operation also generated leads for other companies selling those goods and services, among others.

THE SCOPE OF THE SCHEME The operation called phone numbers, including those on the DNC registry, at a rate of more than 100 million per year.

THE JUDGMENT Jones was ordered to pay $2.7 million to the FTC. He and the other defendants were banned from robocalling and abusive telemarketing activities; penalties totalling $9.9 million were imposed on the others, with all but $510,000 suspended because of inability to pay.

PHOTO, BOTTOM: BOSTON 25 NEWS. FACING PAGE: GETTY IMAGES

TRICKY TRAVEL DEALS

Caribbean Cruise Line

THE PITCH Hired a company that ran an allegedly illegal telemarketing campaign that promised consumers a free two-day Bahamas cruise if they answered a political survey. The calls were designed to push more costly products and services to customers, generating millions of dollars, according to the FTC.

THE SCOPE OF THE SCHEME The operation made billions of robocalls that relied on ID spoofing, disguising the names that would appear on caller IDs, according to the FTC.

THE JUDGMENT Caribbean was fined $7.73 million in 2015, partially suspended after payment of $500,000. With other defendants, was banned from making robocalls and engaging in abusive telemarketing practices.

Of course, the people who are making fraudulent calls are, by design, operating outside the law and pay no attention to the rules. According to YouMail, of the robocalls placed in 2018, 40 percent were scam calls trying to trick consumers into giving away valuable personal information or defraud them out of their money.

To help sort out the good calls from the bad ones, the FTC publishes a daily roster of blacklisted numbers. These are numbers that have received a significant volume of consumer complaints that apps may use to help update their list of numbers to block. Phone companies, some of which have developed their own call-blocking software, also may use the list to either block calls or inform their customers when they believe a number may be problematic. (More on this later.)

Many of these illegal robocalls originate from overseas criminal rings, according to the FTC, and they tend to target the elderly and recent immigrants because both are deemed more receptive to come-ons. The scammers find people to target by consulting phone directories and mailing lists, including "suckers lists"—databases of individuals believed to be susceptible to fraud.

There are many types of fraudulent calls, but the "IRS fraud" and "Social Security fraud" are two common ones. To trick you, criminals spoof a real phone number from the IRS or the Social Security Administration and pose as agents from these agencies. In the IRS scam, the caller may threaten you with jail if you don't pay taxes he claims you owe, insisting that you pay immediately or he'll dispatch the police. In the Social Security scam, the caller might say your file lacks necessary personal information, such as your Social Security number. Or she may claim to need additional information to increase your benefit payment, or threaten to terminate your benefits if you don't confirm the information she has.

If you get any such calls, the FTC suggests that you hang up and report the call to 877-FTC-HELP or go to ftc.gov/complaint.

Delayed Corporate Reaction

For years, phone companies largely looked the other way as the robocall crisis exploded, consumer advocates say. "They dragged their feet and failed to truly solve the problem," says Maureen Mahoney, policy analyst in the advocacy division of Consumer Reports. "The FCC gave phone companies the right to offer advanced call-blocking services in 2015, and to block certain types of clearly illegally spoofed robocalls even without consumer consent in 2017. But still today, not all companies are doing so."

The industry argues that it has been working hard to stop illegal and unwanted robocalls while being sensitive to the reality that there are some robocalls that consumers may want to receive and others that are perfectly legal. Blocking legal robocalls could expose the industry to lawsuits from companies that can claim they lost money because they were illegally prevented from doing business, as could be the case with certain telemarketers. Still, the industry vows its determination to get robocalls under control. "Member companies are fully committed to protecting consumers and will continue to work closely with the FCC, FTC, law enforcement, and other stakeholders to combat the problem," says a spokesperson from CTIA, the wireless industry association.

A Tech Solution From Carriers

If technology in the hands of bad actors has given rise to the tsunami of illegal robocalls, so it may be that technology supplies a solution. Eric Burger, the FCC's chief technology officer, has said consumers can expect major phone carriers to begin to roll out a game-changing new system called STIR/SHAKEN this year. T-Mobile has already started to deploy it in a limited fashion.

FAKE CALLS, REAL LOSSES

15% Percentage of adults who said they or a loved one had been scammed or defrauded by a robocall.

Source: CR nationally representative survey of 1,002 U.S. adults, December 2018.

The acronym STIR/SHAKEN is a tortured one: "STIR" stands for "Secure Telephony Identity Revisited," and "SHAKEN" stands for "Signature-based Handling of Asserted information using toKENs." Creating the technology is just one part of the broader mission of the Alliance for Telecommunications Industry Solutions/Session Initiation Protocol (ATIS/SIP) forum, an industry-led FCC advisory task force.

The hope is that STIR/SHAKEN will help reduce spoofed robocalls by assigning a digital fingerprint to calls. That fingerprint allows carriers to immediately know the real identity of the caller when a call passes through any part of the phone system on its way to your device. If a caller is illegally spoofing a number to place robocalls, it will be faster and easier for telecom providers to shut it down and for law enforcement authorities to find and prosecute those responsible, Burger says. "With STIR/SHAKEN you'll be better able to trust caller ID," he says, because it will contribute vital information to blocking services to target probable spam and fraud.

On the other hand, if the caller is legitimately spoofing a number (as your doctor might) the call will go through because the carrier will have confirmed that the caller hiding his number has the right to do so, says Jim McEachern, principal technologist at ATIS.

But just having the major phone carriers onboard is not enough for caller-authentication technology to work optimally. Many Americans, particularly those who live in more rural areas, still have old-fashioned copper-wire landline phones, and their phone service providers are not fully digitized and thus cannot support STIR/SHAKEN.

That means there will be gaps in protection. As the major carriers become more impregnable, the "bad guys" will move to the more vulnerable old-school telecoms to make their illegal, unwanted robocalls, says Gerry Christensen, a telecom expert and CEO of Mind Commerce, a research company that specializes in phone systems and networking technology.

The FCC's chairman, Ajit Pai, has said that he's committed to making sure that all telecoms deploy STIR/SHAKEN and that he has warned the industry that the agency won't tolerate foot dragging. "If it does not appear that this system is on track to get up and running in 2019, then we will take action to make sure that it does," he said in a November announcement.

Consumer advocates want the companies to do more than just make the tech available. "We're encouraged the FCC chairman says robocalls are a top priority," CR's Mahoney says. "But the FCC needs to make sure that this system is effective for all consumers, which requires getting all the phone providers to participate, and that all consumers are able to stop unwanted spoofed calls for free."

How to Protect Yourself Now

While consumers wait for STIR/SHAKEN to become fully operational, phone companies and others offer apps and devices designed to help reduce robocalls. They may block or identify suspicious numbers that may be fraudulent–such as numbers on the FTC blacklist, or those that their artificial intelligence algorithms have flagged as suspicious because of the sheer volume of calls they make.

Consumers who downloaded these apps and responded to the CR survey said they work to varying degrees. (See "How Consumers Attempt to Control the Chaos," on page 27.) If you want to try one, here are your choices.

YOUR PHONE CARRIER'S ANTI-ROBOCALL SERVICE

Many cellular providers, including AT&T, Sprint, T-Mobile, U.S. Cellular, and Verizon, have services that alert you on your phone that an incoming call may be from a telemarketer, and detect and block calls from probable scammers. In certain cases, these services are free. For others, especially those that offer advanced security and control of calls, you'll have to pay. AT&T, for example, offers a basic free service, AT&T Mobile Security & Call Protect, that consumers can enable by signing up on the telecom's website. For $4 per month, AT&T offers Mobile Security & Call Protect Plus, which the company says also helps protect your data from mobile threats by providing a secure WiFi virtual private network (VPN). To find out what your carrier offers, sign in to its website and look for links referring to call security or call blocking.

CALL-BLOCKING APPS

Also available are third-party apps meant to block robocalls before they reach users. The apps can do this using the FTC blacklist as well as proprietary artificial intelligence technology that flags suspicious numbers, such as those that suddenly start to make thousands

of calls. If your incoming calls are flagged by the app's algorithm, they will, in theory, be blocked. Sometimes the apps allow users to block numbers or create a so-called whitelist of numbers to allow through. Widely used apps include Nomorobo, which costs $2 per month (free for landlines and available in partnership with certain telecom providers), as well as free apps such as Hiya, YouMail, Mr. Number, RoboKiller, and Truecaller. (Consumer Reports has not tested the cell-phone apps.)

It's important for consumers to read and understand the app's terms of service and privacy rules—as they should with any app downloaded from the internet. Some, such as Nomorobo, don't require access to your contact list and other private information, but some of the free apps might.

GOOGLE'S CALL SCREEN

Google has recently unveiled a new tool called Call Screen that is built into its new phones, the Pixel 2, 2XL, 3, and 3XL. When you receive a call from any number, you can tap "screen call" on your home screen and have your Google Assistant screen the call. Google Assistant will answer the call for you and have caller identify herself and why she's calling. When a caller responds, a real-time transcript of the response is displayed. If it's someone you want to speak to, you can simply answer the call. If it's a robocall, you can automatically report the call to Google as spam as well as log it or blacklist it locally on your device. The tool will then block the number from calling you in the future. The tool also lets you select a few canned responses, such as "I'll call you back." The new technology should eventually become available on other Android devices. Although this tool (and others like it) screens the call, it does not prevent the phone from ringing and interrupting you.

LANDLINE CALL BLOCKERS

Solutions also exist for nondigital landlines (copper wire lines) and typically involve installing hardware between your phone and the telephone line. These devices come preloaded with numbers that will be blocked and that users need to update with unwanted numbers as they are received. These devices have a wide range of prices, from around $20 to more than $100.

Nomorobo offers a free robocall-blocking service for landlines, but it works only on newer digital phone lines and not old-school copper lines.

MAIL-IN PETITION PLEASE CLIP OUT AND SEND IN!

STOP ROBOCALLS BEFORE THEY REACH ME!

I AM CALLING on the Federal Communications Commission to better shield consumers from intrusive robocalls as soon as possible. In particular, I support mandatory caller ID verification technology. I also expect the FCC to make sure that the technology is as effective as possible in stopping these calls and that it is free to consumers.

TO **Federal Communications Commission**

FROM

FIRST NAME (REQUIRED) LAST NAME (REQUIRED)

ADDRESS

(REQUIRED)

EMAIL

(OPTIONAL)

MAIL TO **CONSUMER REPORTS**
1101 17TH STREET NW #500, WASHINGTON, DC 20036

SIGN AND MAIL THIS PETITION by May 31, 2019. We'll deliver the ones we collect directly to the FCC.

IF YOU WOULD rather sign this petition online, please go to **robocallspetition.cr.org**.

TWEET @FCC to tell the agency that you want phone companies to be required to stop robocalls now. Be sure to use the hashtag #EndRobocalls.

NOTE: Petitions and comments (including your name and address) filed with the FCC are a matter of public record and will be viewable online after being submitted to the docket.

❑ **CHECK THIS BOX** if you'd like to receive information about CR advocacy initiatives and Consumer Reports products and services.

YOUR INFORMATION is governed by the Consumer Reports privacy policy. To learn more, go to **CR.org/privacy**.

Can Ice Cream Ever Be Good for You?

The makers of 'light' and low-calorie frozen desserts want you to think it's possible. We tested more than a dozen to see whether they actually hit that sweet spot—a healthier treat that tastes like traditional ice cream. **by Jesse Hirsch**

PHOTOGRAPH BY NIGEL COX

ICE CREAM is one of America's most popular desserts. Almost 90 percent of people surveyed by the market research firm Mintel said they had purchased it in the previous 6 months. As a cool finale to a Memorial Day cookout or a special sidekick to go with apple pie, it's hard to beat. For health-conscious eaters, though, the high fat, sugars, and calorie counts prevent ice cream from being a regular snack–even during the dog days of summer.

But now, companies that make the "better for you" frozen treats that populate supermarket freezers want you to be able to dig into a pint of the creamy stuff every day without worrying about weight gain or other health consequences. With labels touting more protein, fewer calories, and less sugar, these cold treats sound downright nutritious. And consumers are scooping them up. In fact, Halo Top, an early leader in the "healthier" ice cream field, surpassed Häagen-Dazs and Ben & Jerry's to become the best-selling pint in the U.S. in 2017.

"There's competition to offer consumers more than a tasty product," says Lynn Dornblaser, Mintel's director of innovation and insight. "Manufacturers are claiming that their products are healthier than their competitors', or at least less unhealthy."

Consumer Reports recently tested 13 of these frozen treats–a variety of "light" and low-fat ice creams, frozen yogurts, and nondairy frozen desserts, and one "traditional" full-fat ice cream. Each product was rated for taste and texture along with healthiness–including nutrition and ingredients–or the lack of it.

We found some decent options. "I still wouldn't advise eating any of these every day," says Amy Keating,

BEYOND MILK & SUGAR

What Else Is in Your Ice Cream These Days?

THERE ARE TWO main schools of thought about choosing a "healthy" ice cream, according to Scott Rankin, Ph.D., a professor of food science at the University of Wisconsin-Madison. "On the one hand, you have consumers who want the fewest ingredients possible," he says. "On the other, you have customers who want their ice cream to have specific 'attributes,' such as no sugar added or nonfat."

But why do these lighter options often have longer ingredients lists? To give them the familiar flavor and texture of regular ice cream, Rankin says, and to address factors you may not think of, like how fast the product melts.

To help you understand what you're eating, we've listed some common processed ingredients in various types of light ice cream you'll find in stores.

R.D., a CR nutritionist and food tester. "But you can feel better about eating some of these products than others."

The Low-Calorie Lure

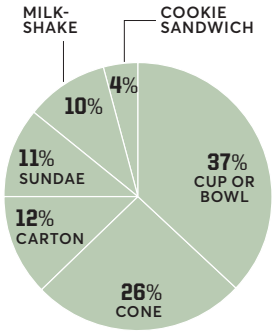
Lower-calorie ice creams and frozen yogurts have been around for years, but the newer crop of treats boasts a more drastic reduction in calories, fat, and sugars. In fact, some "healthier" ice creams have about the same calorie count in a whole pint as just a half-cup of premium ice cream, such as regular Häagen-Dazs.

Prominently displaying the number of calories (some with less than 300 per pint) sends the message that you can plow through that container of ice cream in a single sitting without a serving of guilt on the side. And in case you don't get the hint, the labels encourage you to "go for it" (Enlightened) or "stop when you hit the bottom" (Halo Top).

"People are easily influenced by the perception that a food is healthy," says Keating. In fact, some studies show that having a "health halo" increases the likelihood that people will eat more of the food. For example, in a study from the University of Toronto, women ate 35 percent more when oatmeal cookies were described as a high-fiber snack than when they were described as gourmet cookies.

But just because you can down the whole pint doesn't mean you should. "Eating oversized portions isn't a healthy habit," says Keating.

How People Like to Eat Their Ice Cream



Source: Baskin-Robbins 2017 survey.

PHOTO, PREVIOUS SPREAD, FOOD STYLING: JAMIE KIMM

Agave, Rice Syrup, or Tapioca Syrup

These plant-based sweeteners may sound healthier than sugar, but your body processes them the same way. As with other forms of added sugars, eating too much of them can raise the risk of heart disease, type 2 diabetes, and other conditions.

Carob and Guar Gums

Gums are used as stabilizers, which reduce ice formation and give the product a smooth texture. Carob gum (also called locust bean gum) is from the seeds of the locust bean tree, and guar gum comes from guar beans (a legume). But these plant-based gums can be chemically processed. In large doses, some gums (like other nondigestible fibers), may cause abdominal discomfort.

Carrageenan

Extracted from seaweed, it's used as an emulsifier, stabilizer, or thickener. That may make you think it's better for you. But some research suggests it causes inflammation, and some people with inflammatory digestive conditions, such as irritable bowel syndrome, report symptom relief when they avoid carrageenan.

Erythritol

One of the types of sweeteners known as sugar alcohols, it's 60 to 70 percent sweeter than sugar and has 0.25 calories per gram vs. 4 calories per gram of sugar. Sugar alcohols can cause digestive upset, especially when eaten in large amounts. But erythritol is less likely to do that than other types of sugar alcohols, such as sorbitol and xylitol.

Glycerin

Derived from fat (animal or vegetable), it can help prevent ice-crystal formation in ice cream. It also may add sweetness.

Milk Protein Isolates

These powders, which are at least 90 percent protein, are added to some low-fat and light ice creams to boost protein or improve texture. Whey protein is a similar ingredient. It's always preferable to get your protein from whole foods.

Natural Flavors

The Food and Drug Administration requires these to come from natural sources, but they can be extracted in a lab. Processing aids, such as solvents, and preservatives may be used in the production of flavors; these don't have to be disclosed on a product's ingredients panel.

Soluble Corn Fiber

This fiber is added to improve texture, providing thickening and gelling. Other added fibers include inulin and chicory root fiber. The FDA recently said these ingredients could legally be called dietary fiber, but CR's nutritionists recommend getting your daily fiber from whole foods such as whole grains, fruits, vegetables, and nuts.

Stevia or Monk Fruit Extract

These plant-based sweeteners are hundreds of times sweeter than sugar and have no calories. But there's no good evidence that they (or other sugar substitutes) help with weight loss.

ILLUSTRATIONS BY JOSEPH CARRINGTON

"It encourages you to override your natural hunger and fullness cues, and distorts your idea of what a reasonable serving is."

Protein and Fiber Promises

In its simplest form, ice cream has just four ingredients: milk, cream, sugar, and flavoring, such as vanilla. For many years, there were limited options in overall ingredients, composition, and flavor, says Scott Rankin, Ph.D., a professor and chair of the department of food science at the University of Wisconsin-Madison. "Now we have ice cream alternatives with a very different range of ingredients and calories, fats, and sugar content," he says. (There are also flashy flavors, such as caramel macchiato and glazed doughnut.) Ice creams can include gums, thickeners, protein concentrates, sugar substitutes, and even added fiber. Ingredients like those are meant to give low-calorie, low-fat products a taste and texture similar to regular ice cream. (See "What Else Is in Your Ice Cream These Days?" on page 34.) But in some cases, their presence allows manufacturers to make claims about lower calories and more protein and fiber.

That may sound like a good thing, but "it's an example of a way to reduce nutrients you should limit, such as calories and saturated fat, by adding processed ingredients that may have minimal nutritional value," Keating says.

What's more, adding processed protein and fiber to a product doesn't provide the same health benefits that you get when they're from whole foods. "It's similar to taking a vitamin pill instead of eating vitamin-rich foods," Keating says. You miss out on all of the other nutrients found naturally in the food. And, she points out, we still don't know the long-term effects of consuming these processed ingredients.

There's no need to eat food–including desserts–pumped full of extra protein. "Most people need 50 grams of protein a day and easily get it," Keating says. Some of the treats in our tests had 20 grams of protein per pint or more. "That's roughly the same amount as in a single-serving container of plain low-fat Greek yogurt, and the yogurt is more nutritious."

THE SCOOP ON VEGAN ICE CREAMS

THE MARKET for vegan ice creams, more accurately called nondairy frozen desserts, may not be as widespread as eat-the-whole-pint-style ice creams, but it's getting there. The market research firm Nielsen says "nondairy" was the fastest-growing frozen dessert category in 2017, increasing 49 percent over the previous year's sales.

Nielsen says this growth is due to a desire for wellness—even when it comes to dessert. But how do vegan frozen desserts stack up against full-fat and low-calorie ice creams?

We looked at four brands made with coconut "milk," the most popular dairy alternative for frozen desserts. (Others include cashew milk, soy milk, and pea protein.) Like whole cow's milk, coconut milk is high in saturated fat. "Many people think coconut milk is healthier than whole cow's milk, but there isn't enough evidence to support this," says Amy Keating, R.D.

The nondairy desserts had 2 to 14 grams of saturated fat per serving; the full-fat ice cream had 4 grams of saturated fat. Sugars also varied, from 4 grams up to 16 grams per half-cup serving. Still, the nondairy products we tested tended to lack many of the additives found in the light/low-fat ice creams. And they were tasty, too, with three getting Very Good sensory scores.

"If you're vegan or have trouble digesting dairy, these are great substitutes for ice cream," Keating says. "Just don't think they're healthier for you than regular ice creams."

What Our Testing Found

CR's tests focused on vanilla-flavored frozen desserts, the most popular flavor in the U.S. We chose 13 products that reflect the growing market. Four were dairy-free and made with coconut milk. (For more on these, see the box at left.) We also included a regular ice cream and some frozen yogurts and light/low-fat ice creams that included "eat the whole pint" varieties. "We wanted to see how these newer products stood up to ice cream and frozen yogurt, both from a flavor and a nutrition perspective," Keating says.

It turns out, not so well. At the top of our ratings are a frozen yogurt (Blue Bunny Vanilla Bean) and a traditional ice cream (Breyers Natural Vanilla) with the highest combined scores for flavor and nutrition. Both are recommended and are CR Best Buys.

"Our nutrition score factored in not just calories, sugars, fats, and other nutrients per serving [a half-cup or two-thirds cup] but also the number of added processed ingredients, such as isolated protein and fiber," Keating says. Of course, none of the lighter offerings could match the rich, creamy texture of premium full-fat ice cream. But perhaps the real surprise was that about half of the products we tested received sensory scores of Very Good.

"Personally, I'd rather have a small amount of traditional ice cream," Keating says. "But these lighter products can help you cut back on calories and sugars. Still, you should stick to a reasonable serving size."

LEARN

Get the latest news about safe and healthy eating delivered to your inbox by signing up for CR's free weekly food newsletter at CR.org/newsletter0519.

Ratings › **How Sweet It Is** Our testers evaluated 13 frozen desserts to see which ones tasted good and are a bit healthier for you.

Recommended	Brand	Overall Score	Rating: Nutrition score	Rating: Sensory score	Type	Package size	Average price per serving [1]	Nutrition Information: Calories	Fat (g)	Saturated fat (g)	Protein (g)	Carbohydrates (g)	Fiber (g)	Sugars (g)	Sodium (mg)	CR's Take
$	**Blue Bunny** Frozen Yogurt Vanilla Bean	73	⌃	⌃	FROZEN YOGURT	1.5 qt.	$0.33	110	2.5	1.5	3	19	2 [2]	16	55	Distinct vanilla-bean flavor, with butterscotch and eggy notes. Creamy texture, but a bit icy.
$	**Breyers** Ice Cream Natural Vanilla	67	I	⌃	REGULAR ICE CREAM	1.5 qt.	$0.48	130	7	4	2	14	0	14	35	Complex vanilla flavor. Creamy texture.
	Stonyfield Organic Frozen Nonfat Yogurt Gotta Have Vanilla	61	⌃	I	FROZEN YOGURT	pint	$1.13	100	0	0	5 [3]	21	0	19	60	Slight nonfat powdered-milk taste and vanilla flavor. Airy (less dense) texture.
	NadaMoo Organic Dairy-Free Frozen Dessert Vanilla...Ahhh	61	I	⌃	DAIRY-FREE (COCONUT MILK)	pint	$1.50	120	7	6	0	19	5 [2]	8	35	Tastes mostly of coconut with a mild vanilla-bean flavor. Creamy texture.
	Edy's Slow Churned Light Ice Cream Classic Vanilla	61	⌃	I	LIGHT ICE CREAM	1.5 qt.	$0.33	100	3	2	3	15	0	14	35	Slight vanilla flavor with an airy (less dense), slightly gummy texture.
	Halo Top Light Ice Cream Vanilla Bean	59	I	⌃	LOW-FAT ICE CREAM	pint	$1.25	70	2	1	5 [3]	14	3 [2]	6 [4]	110	Moderate vanilla flavor, with butterscotch and eggy notes. Slightly icy.
	So Delicious Coconut Milk Non-Dairy Frozen Dessert Vanilla Bean	53	I	⌃	DAIRY-FREE (COCONUT MILK)	pint	$1.50	160	9	8	0	19	3 [2]	16	60	Tastes mostly of coconut with a mild vanilla flavor. Creamy texture.
	Skinny Cow Lowfat Ice Cream Oh My Vanilla Bean	53	I	I	LOW-FAT ICE CREAM	14 fl. oz.	$1.57	90	2.5	1.5	6 [3]	12	0	9 [4]	60	Slight nonfat powdered-milk taste. Some vanilla-bean flavor, with an eggy note. Mildly unpleasant mouth coating.
	Turkey Hill Frozen Yogurt Vanilla Bean	51	I	I	FROZEN YOGURT	1.5 qt.	$0.33	90	0	0	3	19	0	14	60	Moderate nonfat powdered-milk taste. Some vanilla flavor. Airy (less dense), slightly gummy texture.
	Breyers Delights Lowfat Ice Cream Vanilla Bean	50	I	I	LOW-FAT ICE CREAM	pint	$1.25 [5]	90	2.5	1.5	7 [3]	21	0	7 [4]	55	Slight nonfat powdered-milk taste, mild vanilla flavor, and a slightly bitter aftertaste. Airy (less dense) texture.
	Luna & Larry's Organic Coconut Bliss Non-Dairy Frozen Dessert Vanilla Island	47	⌄	⌃	DAIRY-FREE (COCONUT MILK)	pint	$1.75	210	16	14	1	16	1 [2]	13	35	Tastes mostly of coconut with a hint of vanilla flavor. Creamy texture.
	Halo Top Dairy Free Frozen Dessert Vanilla Maple	43	I	⌄	DAIRY-FREE (COCONUT MILK)	pint	$1.25	70	2.5	2	3	15	5 [2]	4 [4]	75	Maple flavor dominates; has a hint of vanilla and a bitter aftertaste. Icy texture with a chalky mouthfeel.
	Enlightened Lowfat Ice Cream Vanilla	42	I	⌄	LOW-FAT ICE CREAM	pint	$1.25	60	1.5	1	6 [3]	14	5 [2]	3 [4]	35	Moderate nonfat powdered-milk taste, mild vanilla flavor, and slightly bitter aftertaste. Sweetness lingers. Airy (less dense), slightly gummy texture.

[1] Unless otherwise noted, serving sizes are a half-cup. [2] Added isolated fibers contribute to the fiber content. [3] Contains added concentrated or isolated milk proteins.
[4] Contains non-nutritive sweeteners such as erythritol and stevia. [5] Manufacturer's serving size is two-thirds cup. Nutrition information is based on that serving size; price is based on half-cup serving.

HOW WE TEST: CR evaluated "healthier" frozen desserts for nutrition, ingredients, sensory quality (taste and texture), and price from three general categories: light and low-fat ice creams, frozen yogurts, and nondairy frozen desserts. As a comparison, Breyers' regular vanilla ice cream was also included.

In blind taste tests, our sensory panel assessed flavor and texture. Products that scored the best had big dairy and complex vanilla flavors, and a creamy texture. Nutrition scores are based on nutritional information on the package and the types of ingredients the products contained.

⌄⌄ ⌄ I ⌃ ⌃⌃ WORSE — BETTER | ✓ RECOMMENDED | $ CR BEST BUY

THE BEST OF FREE

VUDU

THE ROKU CHANNEL

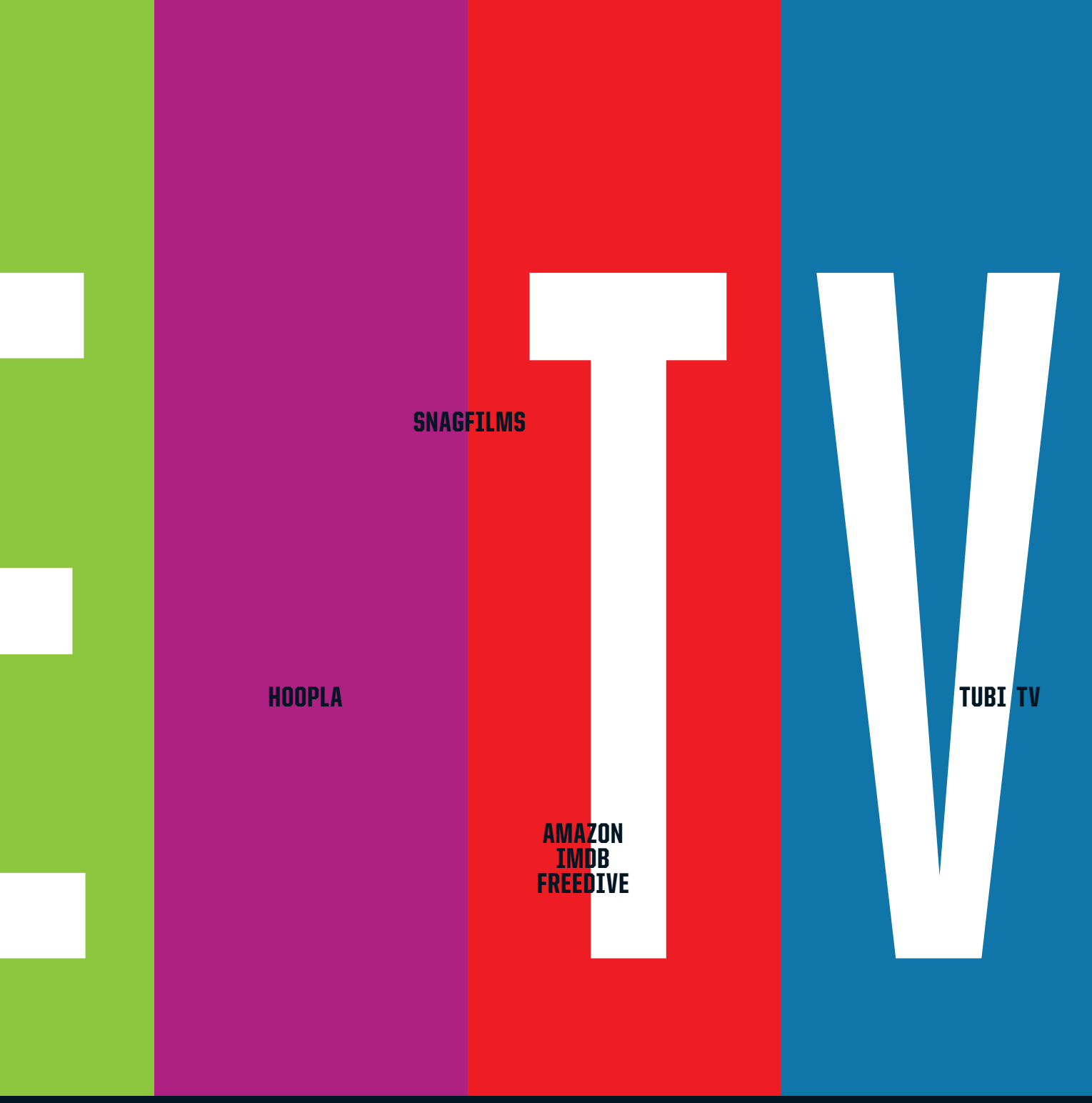
KANOPY

XUMO

PLUTO TV

SONY CRACKLE

AS PRICES FOR CABLE AND STREAMING SERVI
TO TUNE IN TO THOUSANDS OF MOVIES AND T
PLUS, CHECK OUT OUR RATINGS OF STREAMIN



CES LIKE NETFLIX CLIMB, WE SHOW YOU HOW
TELEVISION SHOWS THAT DON'T COST A CENT.
NG MEDIA DEVICES. **BY JAMES K. WILLCOX**

CR'S GUIDE TO NO-COST MOVIES & TV

IF THE COST of your cable TV bill or any streaming media subscriptions you use to watch movies and television shows hasn't already climbed, it probably will soon: Cable rates and fees are rising, Amazon increased the price of its annual Prime membership (which includes video streaming) by $20 last year, and in January Netflix bumped up its subscription rates by 13 to 18 percent, depending on the level of service. Analysts

AMAZON IMDB FREEDIVE

For film and broadcast favorites from the recent and distant past

In January, Amazon launched Freedive, an ad-supported streaming service offered through its IMDb movie and TV database. Freedive offers oldie-but-goodie movies and TV series in genres including Documentary, Sci-Fi, Comedy, and Drama, as well as original IMDb content, including celebrity interviews and awards show coverage. As with many free streaming services, you cannot fast forward through advertisements.

SAMPLE MOVIES: "Memento," "A Raisin in the Sun," "The Ides of March," and "Blue Jasmine."

SAMPLE TV: Series including "Fringe," "Heroes," "The Bachelor," and "Dallas."

HOW TO WATCH: Sign in via a browser or app using IMDb, Amazon, Facebook, or Google credentials.

imdb.com/freedive

HOOPLA

For critically acclaimed (and ad-free) movies and documentaries, PBS TV series, and more

Hoopla offers a mix of recent and old, high-brow and popular movies and documentaries, as well as educational content, including The Great Courses series. Its television offerings are heavy on PBS titles. Hoopla also has e-books and albums of Broadway hits ("Hamilton," "Dear Evan Hansen") and popular releases by artists as diverse as Michael Bublé and Cardi B.

SAMPLE MOVIES: "Ida," "RBG," "God's Own Country," "His Girl Friday," and "Frida."

SAMPLE TV: "Agatha Christie's Marple," "The Great British Baking Show," "Victorian Slum House," and "Foyle's War."

HOW TO WATCH: To create a Hoopla account, you'll need to have a card from a participating library. Your library determines how many movies you can borrow each month.

hoopladigital.com

KANOPY

For art house, independent, foreign, and educational films and documentaries

Like Hoopla, Kanopy content is ad-free and can be accessed only by a library card holder from a participating library. Its catalog of more than 30,000 films tilts toward the cerebral, with selections from sources including the Criterion Collection, The Great Courses, New Day Films, and PBS.

SAMPLE MOVIES: "Rashomon," "Umbrellas of Cherbourg" "Tokyo Story," "Bill Cunningham: New York," and "I Am Not Your Negro."

HOW TO WATCH: Register by selecting your participating library or educational institution, and follow the directions. (If you're using a public library membership for access, you'll need your card number.) Libraries may allow you to view only a limited number of titles per month.

kanopy.com

PLUTO TV

For live news and a wide selection of music, videos, and older movies and TV shows

Pluto offers an eclectic array of video and music content, including more than 100 streaming TV channels in genres including Sports, Comedy, Geek + Gaming, and Life + Style. Movies tend to be older ones in genres including Westerns, Black Cinema, and Horror. There are also more than 30 music channels in genres from Oldies and Country to Christian and Latin Pop.

SAMPLE MOVIES: "Troy," "Night of the Living Dead," "Les Misérables," and "Melancholia."

SAMPLE LIVE TV CHANNELS: News channels from NBC, CBS, and Sky; CNET; Fox Sports; Cats 24/7; and NASA TV.

SAMPLE TV: "Storage Wars," "Anthony Bourdain: No Reservations," "Dog the Bounty Hunter," and "The Dick Van Dyke Show."

HOW TO WATCH: There's no need to register, but doing so lets you create a watchlist.

pluto.tv

THE ROKU CHANNEL

For recent and older popular movies, plus classic and live TV

The ad-supported Roku Channel offers free movies, TV shows, and live news and sports programs. Roku has also rolled out a "Featured Free" option on its home screen, linking to free content from not only The Roku Channel but also other content providers, including ABC, the CW, and Fox, and streaming services like Sony Crackle, Pluto TV, and Tubi TV.

SAMPLE MOVIES: "Jackie," "Paddington," "The Young Victoria," and "Whiplash."

SAMPLE LIVE TV CHANNELS: ABC News, Cheddar news, PeopleTV, Combat Go, and Wham Network.

SAMPLE TV: "Dawson's Creek," "I Dream of Jeannie," and "Cybill."

HOW TO WATCH: Select the Roku Channel on Roku devices and the Roku app on Samsung smart TVs, or go to therokuchannel.com on computers, smartphones, and tablets.

therokuchannel.com

say that price hikes at other streaming media providers are likely to follow. But there are a growing number of services that allow you to stream a diverse array of entertainment free of charge. The catch? You'll probably need to sit through commercials or belong to a library that subscribes to one of the ad-free content providers.

Free streaming services come with some trade-offs. For instance, programs aren't yet available in 4K, which you can get from some pay streaming services. You're also more likely to see older movies and TV shows than recently released fare. Still, you can find plenty worth watching if you're willing to sift through all of the available offerings. And, in a world of $1,000 smartphones and $5 coffees, it's nice to know you can watch great movies and documentaries, such as "Hotel Rwanda" and "RBG," without spending a cent.

All of the services below allow you to stream shows to your computer through a web browser, or to your smartphone or tablet via an app. They can also be streamed directly to a smart TV with an app that supports the service, or to any TV with a streaming media device from companies such as Amazon, Apple, Google, and Roku. Check the streaming service's website for details.

SNAGFILMS

For classic and foreign films and documentaries, cult favorites, and TV shows

SnagFilms offers more than 2,000 on-demand movies, TV show episodes, documentaries, and original comedy shorts, most outside the mainstream. Categories include Festival Favorites, Refugee & Immigrant Stories, Thrillers, LGBT, and Latino.

SAMPLE MOVIES: Pasolini's "Medea," "Hotel Terminus: The Life and Times of Klaus Barbie," "The Kid," and "The Brain That Wouldn't Die."

SAMPLE TV: "Shark Men," "Outlaw Bikers," and National Geographic's "Gearhead Gladiators."

HOW TO WATCH: There's no need to set up an account, but if you do, you'll get added features, such as viewing history and the ability to create a watchlist. You can create a SnagFilms login on the SnagFilms home page or log in through Facebook.

snagfilms.com

SONY CRACKLE

For older mainstream movies and TV shows and some original programming

Crackle, Sony's ad-supported streaming service, offers a library of older mainstream TV shows and older movies (both popular and lesser known). It also has original content, including "Snatch," a drama based on the movie of the same name, and a cryptocurrency tech thriller called "StartUp."

SAMPLE MOVIES: "Big Fish," "Pineapple Express," "The Bourne Ultimatum," and "Elektra Luxx."

SAMPLE TV: "Seinfeld," "Walker, Texas Ranger," "Who's the Boss?" and "Community."

HOW TO WATCH: You don't have to create an account, but doing so gives you access to a watchlist feature.

sonycrackle.com

TUBI TV

For a wide array of recently acclaimed and classic movies, and reality and vintage TV

With more than 12,000 movie and TV titles from over 200 content partners in dozens of categories, Tubi TV has something to interest most everyone. Genres include Sundance, Documentary, Classics, Comedy, and Highly Rated on Rotten Tomatoes.

SAMPLE MOVIES: "Good Guys Wear Black," "Flower Drum Song," "I Am Love," and "The Impossible."

SAMPLE TV: "The Dick Cavett Show," "The Mindy Project," "Merlin," and "Blue Bloods."

HOW TO WATCH: You don't have to register for Tubi TV, but if you do, the service will recommend titles based on your viewing history. You'll also be able to resume play from where you left off and keep track of what you've watched.

tubitv.com

VUDU

For older and indie hit films, TV shows, and lesser-known movies

Most people know Vudu, Walmart's online video site, for its catalog of more than 150,000 movie and TV programs available for rent or purchase. But it recently expanded its free, ad-supported content lineup to include more movies and full seasons of TV series, which you can find under the "Free" heading at the top of the home page.

SAMPLE MOVIES: "Legally Blonde 2," "Terminator 3," "Winter's Bone," and "Showgirls."

SAMPLE TV: "Queer As Folk," "Unsolved Mysteries," "Grace Under Fire," and "Hell's Kitchen."

HOW TO WATCH: You need to create a Vudu account or log in through Facebook even to watch free content.

vudu.com

XUMO

For news, short videos, live golf, John Wayne classics, and a hodgepodge of movies and TV programs

Xumo offers live and on-demand content from more than 160 channels, with a lot of short-form content from providers including Funny or Die, TMZ, GQ, and Sports Illustrated. After you've used the service, it can start making program recommendations based on your interests. Xumo recently added the PGA Tour's first ad-supported streaming channel.

SAMPLE MOVIES: "The Illusionist," "The Sweet Hereafter," and "The Lucky Texan."

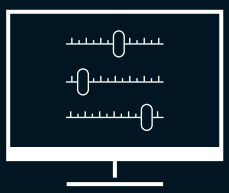
SAMPLE TV: "Roseanne," "Third Rock from the Sun," and "Could It Be a Miracle?"

SAMPLE LIVE TV CHANNELS: CBS and NBC news, Bloomberg Television, and PGA Tour.

HOW TO WATCH: There's no need to register. In addition to being available on computers and other digital devices, Xumo can be streamed on smart TVs made by Panasonic, Philips, Samsung, Sanyo, Sharp, Vizio, and others.

xumo.tv

ILLUSTRATIONS BY TODD DETWILER



HOW TO GET THE PERFECT PICTURE

Members who share their email address with us can use CR's exclusive Screen Optimizer **(CR.org/tvscreenoptimizer)** to find the ideal picture settings on more than a thousand TV models. You can also adjust the settings on your own by following these steps.

1 SELECT A PICTURE MODE

All TVs come with a menu of picture mode presets with names such as "vivid," "natural," "sports," and "cinema." When you select one of these, the brightness, contrast, and sharpness are automatically adjusted to preset values. Our advice: Skip the "sports," "vivid," and "dynamic" modes. We've found that modes with names like "natural," "cinema," and "movie" generally provide the best results—no matter what sort of content you're watching.

2 TWEAK THE SETTINGS

Once you've selected a preset picture mode, further adjust the image using the following settings.

Brightness Level
(also called black level): Freeze-frame on a very dark nighttime scene, and turn up the brightness/black level control until you can see the details in the image's darkest areas. Then turn the level back down so that the image becomes as dark as possible without obscuring the near-black shadow details. Turn the setting down too far, and those details will turn black.

Contrast
Also called white level, contrast affects brightness and how well the TV can display near-white shadow detail. To adjust it, find an image with lots of white—say, a sky full of puffy white clouds. Lower the contrast control until you can see all the detail, such as the subtle gray shadings in the clouds. Then raise it to get the brightest picture possible without washing out those details. Tip: You'll generally want to set the contrast below the maximum level.

Color and Tint
Start with color temperature, which is sometimes called color tone. We recommend choosing the "warm" or "low" setting, which will prevent the whites from appearing too blue. Then adjust the tint/hue control so that skin tones look natural. Adjust the color level control (also called "saturation") so that colors look vivid and realistic but not so intense that they appear to be glowing.

Sharpness and More
Turn the sharpness control down to zero, then add sharpness sparingly only if the image looks soft, with poorly defined edges. Also turn off any noise-reduction and image-enhancement or "dynamic" modes; these tend to reduce image quality.

3 CLEAN YOUR TV SCREEN

To avoid damage, modern TVs need some extra TLC when you clean them. Here are our tips for making your flat-screen TV sparkle.

Turn Off the Set
It's not only safer for the TV but also usually easier to see dirt or finger smudges when the screen is dark.

Use a Dry, Soft Cloth
Tissues, paper towels, and certain fabrics can scratch screens. Use a soft, anti-static microfiber cloth—the kind used to clean eyeglasses and camera lenses—and wipe gently, using a circular motion.

Avoid Harmful Chemicals
Alcohol and ammonia, found in window cleaners such as Windex, can damage a TV's screen. So for stubborn smudges, dampen a soft cloth slightly with distilled water or mild dish soap highly diluted with distilled water (use a 100:1 ratio of water to soap) to gently clean the screen. Never spray it directly: Liquid can find its way into the set and cause electrical damage. Finish by going over the screen one more time with a dry microfiber cloth to remove any swirls or streaks.

Don't Forget the Remote Control
A remote control can spend a lot of time in a lot of different hands, which means it can get grimy and harbor germs.

To clean a remote, first remove the batteries. Then turn it so that the buttons are facing the floor, and tap it against your palm to dislodge any debris that might have fallen between the buttons. Next, wipe down the entire remote with a soft cloth that's been sprayed with a small amount of alcohol diluted with water (the cloth should be damp, not wet).

Clean between the buttons with a cotton swab dampened with the alcohol/water mix. More stubborn debris can be dislodged with a dry toothbrush or a wooden toothpick.

Last, wipe down the whole remote once again with a dry, soft cloth and reinstall the batteries.

SIMPLIFY YOUR VIEWING WITH THE RIGHT STREAMING MEDIA PLAYER

THOUGH THERE'S a bounty of free movies and TV shows available to stream, you'll need a smart TV or separate streaming media device to watch any of it. Our survey findings and the advice of CR's experts suggest that you might want to consider buying a streaming media player even if you already have a smart TV.

In a fall 2017 CR survey, 46 percent of 16,000-plus members who had used both a smart TV and a streaming media player said that the experience of streaming media is better with a streaming device; 24 percent said it's better using a smart TV. "Streaming media players are popular because they're inexpensive and easy to use, and they may offer more content than you'd get from a smart TV," says Elias Arias, who leads streaming device testing at Consumer Reports. He notes that dedicated streaming players may have speedier performance than smart TVs, and their apps may get updated more frequently. "Some people also find the menus on streaming media players easier to navigate than those on smart TVs," he says.

Streaming devices come in two basic types: set-top boxes and stick-style devices. Though set-top boxes are usually a bit faster, both types perform well in our tests.

Arias says some features, such as universal search (which allows you to search across all streaming services) and voice-search capabilities, can make streaming devices easier to use. "There's also been an increase in the number of devices that stream in 4K, but if you don't have a 4K TV and don't plan to get one sometime soon, there's no advantage to getting a 4K device," Arias says. Use our streaming media player ratings to choose the model that's best for you.

Recommended	Rank	Brand & Model	Overall Score	Price	Test Results: Picture quality	Test Results: Features	Test Results: Everyday use	Test Results: Connectivity	Test Results: First-time setup	Features: Built-in voice search	Features: Supports dual-band WiFi
		HD STREAMING MEDIA DEVICES									
✓	1	**Google** Chromecast (3rd generation)	76	$35	⏫	⬆	⬆	⬇	⬆		●
✓	2	**Google** Chromecast (2nd generation)	75	$35	⏫	⬆	⬆	⬇	⬆		●
✓	3	**Amazon** Fire TV Stick With Alexa Voice Remote	74	$40	⏫	⏫	⬆	➖	⬆	●	●
✓	4	**Roku** Streaming Stick 2017	72	$50	⏫	⏫	⬆	➖	⬇	●	●
$	5	**Roku** Express (2017)	69	$25	⏫	⏫	⬆	➖	⬇		
		4K STREAMING MEDIA DEVICES									
✓	1	**Amazon** Fire TV Cube	82	$120	⏫	⏫	⬆	➖	⏫	●	●
$	2	**Amazon** Fire TV Stick 4K	81	$50	⏫	⏫	⬆	➖	⏫	●	●
✓	3	**Google** Chromecast Ultra	80	$70	⏫	⏫	⬆	➖	⬆		●
✓	4	**Apple** TV 4K (32GB)	77	$180	⏫	⏫	⬆	➖	➖	●	●
$	5	**Roku** Streaming Stick+	77	$60	⏫	⏫	⬆	➖	⬇	●	●
$	6	**Roku** Premiere+ (2018)	76	$50	⏫	⏫	⬆	➖	➖	●	
$	7	**Roku** Premiere (2018)	72	$40	⏫	⏫	⬆	➖	⬇		

HOW WE TEST: All of these devices are capable of streaming in HD; 4K models can also stream 4K content to 4K UHD TVs. **Picture quality** includes image clarity, color accuracy, and contrast, based mainly on the judgments of a CR panel of experts. **Features** reflects the presence or absence of features, including ability to play media files. **Everyday use** reflects how easy it is to perform common tasks, such as navigating menus. **Connectivity** reflects the amount and type of connections. **First-time setup** reflects how easy it is to set up the product out of the box.

CBD GOES MAINSTREAM

This cannabis compound—purported to ease anxiety, soothe pain, and promote better sleep—is now in hundreds of products, from bath salts to coffee drinks. We surveyed more than a thousand CBD users nationwide to learn whether and how it's changing their lives.

BY LISA L. GILL

A **MOTHER WHO USES CBD TO TREAT HER SON'S SEIZURES.** A veteran hoping it will help her wean off opioids. A dietitian who says it helps her sleep through the night. Even a pet owner using it to calm his anxious Saint Bernard. These are just some of the estimated 64 million Americans who have tried CBD, or cannabidiol, in the last 24 months, according to a January 2019 nationally representative Consumer Reports survey of more than 4,000 Americans.

The survey found that more than a quarter of people in the U.S. say they've tried CBD—a compound in both marijuana and hemp that doesn't get you "high"—for a slew of mental and physical reasons. One out of 7 of those people said they use it every day.

Americans of all ages are using it, too. It's most popular among

people in their 20s, with 40 percent of them saying they have tried CBD—but so have 15 percent of people 60 and older. And our survey respondents also said it helped. Most of those who tried CBD reported that it was effective, especially among those who used it for anxiety. In some cases, they said CBD allowed them to eliminate over-the-counter or prescription drugs, including opioids.

Sold in pill form, oils, tinctures, topical lotions, and even in bottled water, coffee, beer, and cosmetics, CBD is already in hundreds of products on the market. And that could soon rise sharply, in part because of recent changes in federal law that allow U.S. farmers to legally grow hemp, according to the Brightfield Group, a market research firm specializing in cannabis. The company expects the CBD market from hemp alone to grow to $22 billion by 2022, up from $327 million in 2017.

At the same time, more states are legalizing marijuana itself for medical use and, increasingly, for adult recreational use. More than a quarter of Americans now live in the 10 states, plus Washington, D.C., where recreational use is legal, including California, Colorado, and Massachusetts. And others—including New Jersey and New York—could be joining the list soon.

More than three-quarters of U.S. adults favor legalizing the medical use of marijuana, according to a separate nationally representative 2018 CR survey of more than 1,000 U.S. adults, and half support legalizing recreational use.

While more Americans may be using CBD and marijuana, the laws and regulations governing both remain confusing and inconsistent.

For example, though marijuana is now legal to one extent or another in 33 states, it remains illegal federally. And despite the loosening of rules governing the growing of hemp, some cities and states have recently cracked down on foods that contain CBD, calling it an unapproved food additive.

Meanwhile, some scientists, doctors, and public health officials question what's really known about the benefits—and risks—of CBD by itself, and of marijuana, too. In fact, the growing interest in marijuana has renewed concerns about its safety, ranging from impaired driving to mental health problems.

If you decide to try cannabis, here's what to know about its potential health benefits and risks, as well as how to stay safe and avoid potentially dangerous products.

PHOTO: JONATHAN WEISS/ALAMY STOCK PHOTO

CBD

Until recently, CBD was an underappreciated compound in cannabis—growers actually tried to breed it out of plants, seeking strains with higher THC levels, according to cannabis historian Martin Lee. It wasn't until 2009, he says, that growers came across plants containing large amounts of CBD.

Some research suggests that CBD may affect the "endocannabinoid system"—a series of receptors found throughout the body that seem to interact with various compounds in cannabis, including CBD, and some of which are related to feelings of anxiety and pain, or that help regulate the body's sleep-wake cycles.

CBD's most far-reaching health effect may be its anti-inflammatory properties. And not just in a knee or hip joint, but throughout the body, including the central nervous system and the brain, says Joseph Maroon, M.D., a clinical professor of neurological surgery at the University of Pittsburgh Medical Center who has investigated the link. In a 2018 review, he and colleagues say such effects could possibly reduce anxiety, depression, seizures, and post-traumatic stress disorder (PTSD), and even benefit people who have suffered a concussion.

The best studies of CBD so far have been in the area of seizures, and the results were strong enough that last year the Food and Drug Administration approved a prescription version of CBD, Epidiolex.

CR's survey also provides some support for CBD's possible health benefits. Almost three-quarters of people who took CBD said it was at least moderately effective for the main reason they took it, with 48 percent of them saying it was very or extremely effective.

And CBD seemed to work well for some of the most common problems, including easing stress and joint pain and improving sleep. Our survey also suggested that side effects were uncommon; almost three-quarters said they experienced no side effects.

Also promising: 22 percent of people who took CBD for one of the health problems we asked about said it helped them replace prescription or OTC drugs, with more than a third of those people saying they used it to replace opioids. And some researchers across the country are now studying whether CBD (alone or in combination with THC) could be a tool in the fight against the ongoing opioid crisis.

WHERE AND HOW CBD IS SOLD

You may find CBD online or in local health food stores or CBD-specific retailers. In CR's survey, edibles including gummies and other infused foods and drinks were the most popular way to get CBD, with oils or drops, vape pens, and rubs also common.

Look for products that show how much CBD is in each dose, not just the whole product, says Mitch Earleywine, Ph.D., a professor of psychology at the

TEAM UP WITH **CR** TO TEST WHAT'S IN YOUR CBD

WITH CBD SHOWING UP in hundreds of products—and more expected—Consumer Reports believes it's important to test these products on behalf of all consumers. We want to learn whether they have as much CBD as claimed, whether they have more THC than they should, and whether they are contaminated with pesticides or other adulterants. That will be complicated and expensive—so as a nonprofit we're trying something new: asking you directly to help us raise the money needed, using the crowd-funding website Kickstarter, which draws on the collective support of many small donors from a cross section of the population to fund and spread the news about worthy projects. To join the effort, go to **CRTestsCBD.com.**

ICONS: ELIAS STEIN

University at Albany, State University of New York, who has studied the medicinal use of CBD.

Dosages, which are expressed in milligrams, or mg, vary depending on the form of the product, and experts often suggest starting with products that have relatively low doses. For example, with tinctures, Earleywine suggests generally starting with a product that has just 10 mg per dose.

Avoid products that make sweeping health claims–they're often inaccurate, and illegal.

If you vape, know that the concentrated oils used can contain a solvent called propylene glycol. When burned at high temperatures, it can degrade into formaldehyde, which can irritate the nose and eyes and could increase the risk of asthma and cancer. So consider CBD vape pens that advertise "solvent-free oils."

To date, few states require testing of CBD products sold online or in retail. The best way to find out whether a product has what is claimed is to ask for its COA, or certificate of analysis.

That document shows how a product performed on tests, typically commissioned by the manufacturer, checking for CBD and THC levels, and whether it contains contaminants like heavy metals or pesticides. If an online manufacturer or a retail store doesn't have the information, or refuses to share it, look for another product.

CBD'S LEGAL STATUS

The legal status of CBD is still somewhat murky. Forty-seven states have passed laws legalizing CBD to one extent or another. (If it comes from hemp, THC levels must stay very low–0.3 percent or below.) And the 2018 Farm Bill allows farmers to grow hemp and legalizes hemp derivatives like CBD. The bill also removes CBD extracted from hemp from the Drug Enforcement Administration's list of "Schedule I drugs," such as heroin, which the DEA deems to lack any medical use and to pose a high risk of abuse. (Marijuana and THC remain Schedule I drugs.)

But on the federal level, the FDA still has reservations. That's partly because now that the agency has approved a CBD-based prescription drug–Epidiolex–it says any product that markets the compound for health purposes should go through the FDA's rigorous official drug approval process.

In addition, the FDA notes that when CBD is put into food–say, a cookie, honey, coffee, or water–it is considered a "food additive." And the agency has not yet approved CBD for that purpose.

As a result, some local health officials have started to crack down on CBD in food. Michael Lanza, spokesperson for New York City's Department of Health and Mental Hygiene, says that the city prohibited CBD in food after being advised by the FDA that it is "unlawful to add [CBD] to food and drink." Regulators in Maine, Ohio, and elsewhere have taken similar steps.

The FDA has said that it will hold a public hearing "in the near future" on how to regulate CBD and clarify confusion over CBD's legal and regulatory status.

In the meantime, we have found only a handful of reported examples of people who faced legal troubles for possessing CBD. Charges in at least one of the cases, in Texas, were ultimately dropped.

[CONT. ON PAGE 50]

WHEN DOCTORS PRESCRIBE CANNABIS

There are currently only four cannabis-based medications approved by the Food and Drug Administration that your doctor can prescribe for you and that you can pick up in a pharmacy like any other prescription drug.

That includes Epidiolex, a drug approved in 2018 by the FDA to treat two rare but devastating forms of epilepsy. Epidiolex contains CBD extracted from marijuana plants as the active ingredient.

The other three drugs—Cesamet, Marinol, and Syndros—have a synthetic form of THC and are used to treat nausea stemming from cancer treatment or, in some cases, weight loss in AIDS/HIV patients.

To get FDA approval for those medications, drugmakers were required to conduct multiple clinical trials showing the safety, effectiveness, and proper dosing for each of those drugs. Such drugs can be expensive—Epidiolex could cost $2,700 a month, for example.

On the other hand, insurance might cover their cost. And patients can be confident that there is solid science behind the drugs' approved uses and that they have what's claimed on the label, says Igor Grant, M.D., director of the University of California Center for Medical Cannabis Research. That's not always true of CBD or other cannabis products that you buy, especially online or in a retail store.

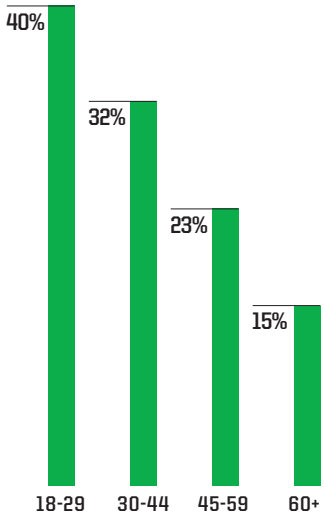
The ABCs of CBD

More than a quarter of U.S. adults have now tried CBD, a compound extracted from hemp and marijuana plants, according to a new nationally representative Consumer Reports survey. Here are some insights into who's using CBD, why they use it, and how effective they say it is.

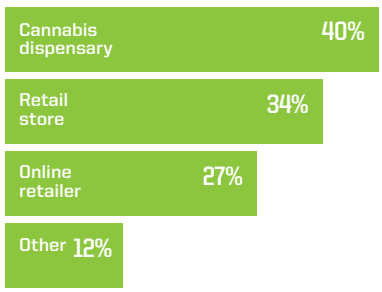
WHO USES CBD?

26% of all Americans have tried CBD at least once in the past two years.

How old they are



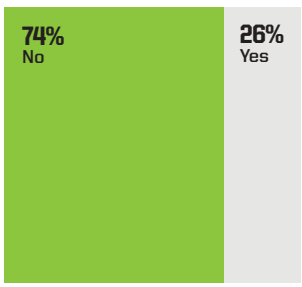
WHERE DO YOU USUALLY BUY CBD?



HOW OFTEN DO YOU USE CBD?

21% of people who tried CBD more than once use it every day.

DID YOU EXPERIENCE A SIDE EFFECT?



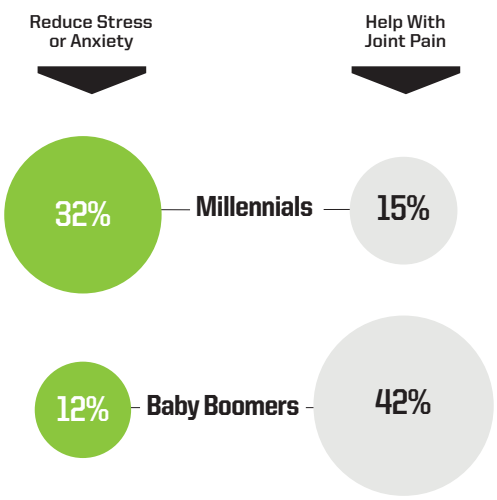
WHAT DO PEOPLE USE CBD FOR?

HOW EFFECTIVE IS IT?*

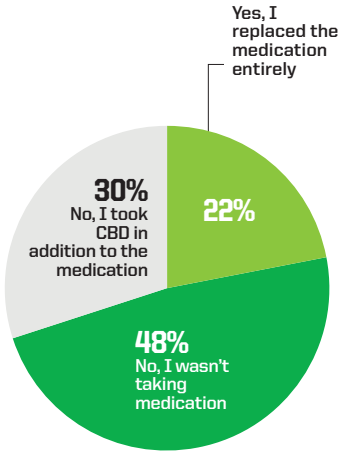
	Extremely or very effective	Moderately effective	Slightly or not at all effective
37% Reduce stress or anxiety or help you relax	63%	17%	16%
24% Help with joint pain	38%	30%	27%
11% For fun or recreation	24%	44%	22%
10% Better sleep	52%	28%	16%

*Numbers don't total 100 percent because people who are unsure are not included.

HOW CBD USE DIFFERS BY AGE



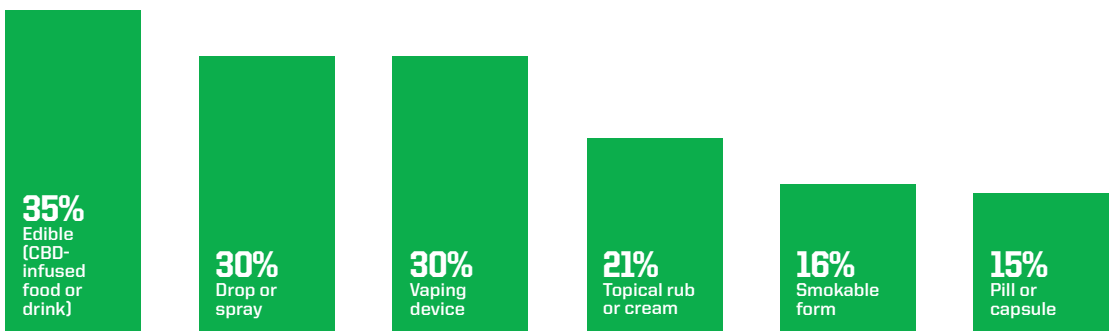
DID YOU USE CBD TO REPLACE A DRUG?



WHAT DRUG DID YOU REPLACE WITH CBD?

- **47%** An OTC drug (Advil, Tylenol, etc.)
- **36%** An Rx opioid (Oxycodone, Percocet, etc.)
- **33%** An Rx anti-anxiety drug (Xanax, Ativan, etc.)
- **22%** An Rx sleep drug (Ambien, Lunesta, etc.)

WHAT FORM OF CBD DO YOU USUALLY USE?



Source: January 2019 CR nationally representative survey.

Marijuana

[CONT. FROM PAGE 47]

Used for thousands of years in religious ceremonies and as a social elixir, marijuana also has dozens of recorded medical uses. Pioneer women in the U.S. used it to ease nausea during pregnancy and to hasten childbirth, and by the mid-1800s early drug companies were marketing cannabis-based tinctures. Today, 33 states plus Washington, D.C., allow marijuana for a variety of medical purposes. But how effective is it, really?

A seminal 2017 report by the National Academy of Sciences that reviewed hundreds of marijuana studies found strong evidence for it in chronic pain, nausea and vomiting from chemotherapy, and muscle spasms in those with multiple sclerosis (MS). And it found moderate evidence for sleep problems (particularly sleep apnea), as well as pain from fibromyalgia and MS.

But marijuana clearly poses risks, too. Immediate ones include impaired mental and physical performance—which may be why its use is linked to car crashes. An October 2018 study found that in four states with legal recreational marijuana—Colorado, Oregon, Nevada, and Washington—crashes were up 6 percent compared with four neighboring states where recreational use was restricted.

And when taken in high doses, marijuana can cause hallucinations, delusion, and psychosis, according to the National Institute of Drug Abuse (NIDA). Long-term heavy use may even be associated with an increased risk of schizophrenia, though that could be because people with schizophrenia may be more likely to use marijuana.

Longer-term use, especially when started young, poses a risk of addiction, according to NIDA, and may impair brain development. Smoking marijuana can also lead to lung infections and coughing, though even frequent use isn't clearly linked to lung cancer.

One less familiar risk of heavy, chronic marijuana smoking can be severe, repeated nausea and vomiting, which can led to emergency room visits.

WHERE AND HOW MARIJUANA IS SOLD

Available only in state-registered "dispensaries," you usually need to be over 21 with proof of ID to purchase. In states that allow only medical use, you'll often also need a card issued by the state after a healthcare provider certifies that you have a qualifying health problem.

In any dispensary, bring cash: Banking is federally regulated, so few accept even credit cards. Once inside, it's often like a jewelry store, with products under glass displays. So you need to talk with a salesperson.

Although you can buy marijuana "flower" either in loose form or as prerolled cigarettes, many smokers vape cannabis using concentrated oil cartridges (similar to e-cigarettes). Look for "solvent-free" oils.

Increasingly, THC, CBD, and other cannabis compounds are also infused into oils or tinctures, as well as teas, cookies, brownies, and other edibles. But it can be easy to get dangerously high doses of THC through edibles because they can be consumed quickly—so their use requires extra caution.

Marijuana is also sold as creams, time-release patches, and even suppositories. Such topicals are more likely to have localized effects—like helping to ease a sore knee—and less likely to cause a "head high."

Staff sometimes put products into a childproof bag or pouch, though extra steps should be taken at home to keep them out of the reach of children.

Note that you can also purchase products in dispensaries that contain CBD extracted from marijuana. These products may have more THC than would be allowed in those sold online or in retail stores but may also be more likely to contain what is claimed, and to be free of contaminants. That's because states typically require more testing of products sold in dispensaries.

MARIJUANA'S LEGAL STATUS

Though the federal government still deems marijuana illegal, 10 states—Alaska, California, Colorado, Maine, Massachusetts, Michigan, Nevada, Oregon, Vermont, and Washington—plus Washington, D.C., have passed laws legalizing adult recreational use. At least five other states—Connecticut, New Hampshire, New Jersey, New Mexico, and New York—are considering it, according to Paul Armentano, the deputy director of NORML, a marijuana advocacy organization. An additional 23 states have legalized marijuana only for medical use.

The distinction between state and federal law may matter most in places where the federal government has jurisdiction, such as national parks, even in states where recreational use is legal. That's also true for airports. Even if you're flying between two states that have legalized recreational use—say, California and Colorado—it's still illegal to fly with marijuana, according to the Transportation Security Administration.

Local jurisdictions typically don't allow people to use marijuana in public or while driving. However, Denver now permits its use in certain registered businesses.

ROAD REPORT

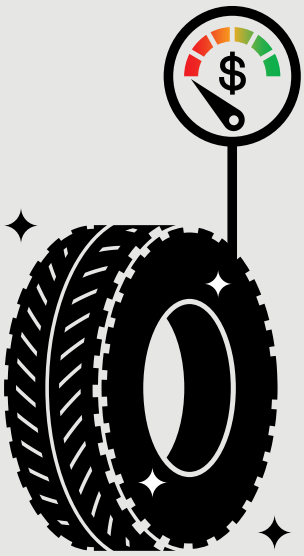
STAY AHEAD OF THE CURVE WITH CR AUTO RATINGS, NEWS & ADVICE™

TIPS FROM OUR TEST TRACK

NEW TIRES CAN HURT MPG

Be aware that your fuel economy could decrease slightly the next time you replace your tires. Gene Petersen, head of CR's tire testing program, says that it's a common occurrence caused by the increase in the rolling resistance of the new tires. As tires lose tread through wear, rolling resistance decreases—and fuel efficiency increases.

"Even if you replace your tires with the exact same model, the new tires could have more rolling resistance than the old ones and will cause a drop in fuel efficiency," Petersen says. "The best advice for optimal fuel efficiency, handling, and long tread life is to maintain proper tire inflation."



THE VITAL STATISTIC

20

That's the number of degrees Farenheit the interior of a parked car can climb in 10 minutes. In CR tests, the temp rose to more than 105° F in an hour when it was just 61° F outside, making it a potentially deadly environment. GM, Hyundai, and Nissan have introduced features that remind drivers to check the backseat for kids and pets. **Source:** NHTSA.

DASHBOARD DECODER

WHAT DOES THIS ICON MEAN?

- ☐ HEAD-REST HEATER IS ON
- ☐ SNAKE AND TURTLE AHEAD
- ☐ FOG LAMPS ARE ON
- ☐ SPEAKERS ARE MUTED

The right answer, of course, is that the fog lamps are on. Fog lamps (or fog lights), available on most cars, work with your low-beam headlights to better illuminate lane lines and road edges obscured by fog. When driving in fog, avoid using your high beams, which can make visibility worse. And be sure to slow down. You'll have less time to react once whatever is ahead of you comes into view.

RECALLS

FORD F-150

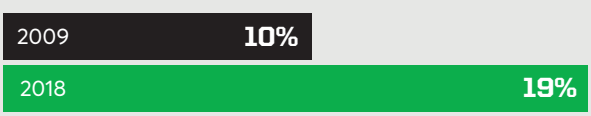
Ford is recalling 1.26 million 2011-2013 F-150 pickup trucks with six-speed automatic transmissions. They may unexpectedly downshift into first gear while the vehicle is in motion, which could increase the risk of an accident. Ford says it knows of five crashes and one injury that may be related to this malfunction.

What to do: Dealers will update software to address the problem at no cost. For more information, owners may call Ford customer service at 866-436-7332; refer to recall number 19S07.

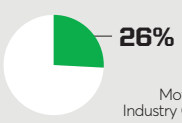
TRENDS

WOMEN MOTORCYCLE RIDERS ARE ON THE RISE

Women are a growing segment of U.S. motorcycle owners.



They represent more than a quarter of all millennial (ages 23-38) motorcycle riders—the most of any generation.



Source: Motorcycle Industry Council.

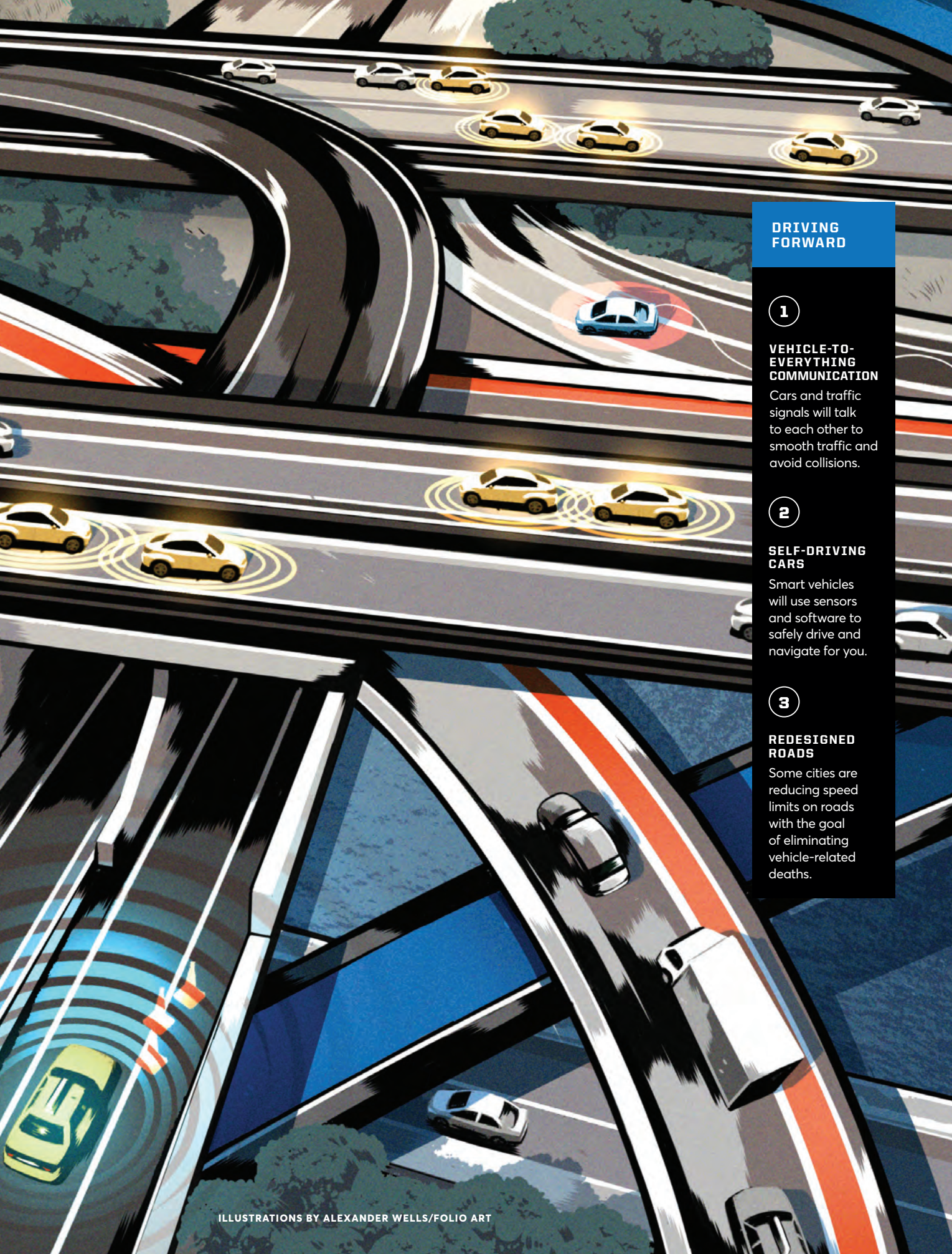
ILLUSTRATIONS BY SODAVEKT

Road Report

Can We Save More Lives?

Advances in safety technology are reshaping the auto industry. So why is the highway death toll still so stubbornly high?

by Jeff Plungis



DRIVING FORWARD

1

VEHICLE-TO-EVERYTHING COMMUNICATION

Cars and traffic signals will talk to each other to smooth traffic and avoid collisions.

2

SELF-DRIVING CARS

Smart vehicles will use sensors and software to safely drive and navigate for you.

3

REDESIGNED ROADS

Some cities are reducing speed limits on roads with the goal of eliminating vehicle-related deaths.

ILLUSTRATIONS BY ALEXANDER WELLS/FOLIO ART

AUTOMOTIVE SAFETY TECHNOLOGY seems to be advancing at breakneck speed. Today, automatic emergency braking (AEB) systems use sensors to help vehicles avoid collisions—or reduce the severity—when drivers fail to act. There are early signs that advances in vehicle-to-vehicle (V2V) communication will one day allow cars to talk to—and avoid—each other. And automakers and tech companies say that some day self-driving cars, the Holy Grail of highway safety, may reduce or even eliminate crashes.

Yet even with all the safety advances over several decades, more than 37,000 people died on U.S. roadways in 2017, according to the National Highway Traffic Safety Administration, down slightly from 2016. That's still about 5,000 more deaths annually than in 2011, a historically significant low point for fatalities. The National Safety Council, which also tallies deaths on private roads, says the annual figure is actually more than 40,000.

Automakers and regulators have worked to make cars and driving safer for more than 50 years. So why aren't U.S. highway fatalities going down? People are driving more miles than in the past, but that doesn't explain the increase entirely. Transportation experts say the industry and others, such as government road designers, safety regulators, and drivers, could be doing more to bring the number down.

"There's still so much safety tech on the shelf, and too many people are overconfident about their driving," says David Friedman, vice president of advocacy at Consumer Reports. "The fundamental cultural question is: Why do we tolerate this many highway fatalities?"

There isn't one answer. Drunken drivers are still killing themselves and others, and distracted driving remains a deadly epidemic. Some argue that urban road design favors traffic flow over safety. Many of the planned safety advances from automakers are years away, and some proven safety features are still reserved as luxury options.

CR believes that systems with AEB, pedestrian detection, forward collision warning (FCW), and blind spot warning (BSW) should come standard on all models because they save lives.

For this report, CR looked at the stubborn problem of U.S. highway fatalities through the eyes of safety researchers: We analyzed what it would take to save lives with better cars, better roads, and better drivers.

"The numbers shouldn't be stagnating, they should be going down," says Jason Levine, executive director of the Center for Auto Safety. "People—because we are human beings—make mistakes. We need to find mechanisms and technology that help people be safer." A bad decision by a driver or programmer shouldn't cost a life, he says.

PART ONE: THE CAR

The promise of self-driving cars is so exciting because the technology could significantly reduce traffic deaths. More than 9 of every 10 serious crashes are linked to driver error, according to NHTSA. In theory, a robot-driven car doesn't fall asleep or get drunk. It doesn't make human mistakes.

Of course, there are a lot of unknowns with this reasoning. Fully automated vehicles don't exist yet, and if and when they're launched for everyday use, they still could be vulnerable to other kinds of errors, such as design defects or programming glitches. And there's currently no agreement among regulators, automakers, and watchdog groups about how to measure the performance of self-driving test cars on the road. Until that question is answered in a way that inspires public confidence, many of the expected safety benefits could remain theoretical.

In the same vein, V2V communication is often cited as a key to developing a future transportation system so smart that crashes and traffic fatalities are rare. This technology uses short-range radio signals (or the 5G networks of the future) so that cars can "talk" to each other and coordinate with traffic signals.

A few automakers have installed V2V hardware in vehicles. But the holdup in equipping more cars has more to do with priorities than the pace of technological development.

A proposal by NHTSA to establish V2V ground rules has been mired in a dispute between automakers and tech companies. The tech industry wants the airwaves now reserved for V2V to be used to expand WiFi. There are other proposals within government that are part of this debate.

It's clear that some existing crash-avoidance technologies are saving lives today. Some groups want more new cars to have these features, such as FCW and AEB.

"We can save countless lives by taking action now on verified technology and comprehensive laws," said Cathy Chase, president of Advocates for Highway and Auto Safety, a watchdog group in Washington, D.C., in a recent webcast presentation.

The National Transportation Safety Board, the agency that investigates aviation accidents and other high-profile transportation crashes, has called for manufacturers to equip vehicles with some of these features. In 2001 it asked NHTSA to develop regulations that require FCW and adaptive cruise control.

The NTSB also has called for AEB in every car. The safety board can't create regulations on its own and usually only issues recommendations after an investigation. Regulators and auto companies aren't required to follow them. In 2016 auto manufacturers came to a voluntary agreement to roll out standard AEB on almost all new passenger

"We expect perfection, and we have so many fail-safes in pretty much every other transportation mode other than motor vehicles. Why don't we expect the same and have some of these fail-safes in the roadway transportation system?"

JANE TERRY, SENIOR DIRECTOR OF GOVERNMENT AFFAIRS AT THE NATIONAL SAFETY COUNCIL

ANATOMY OF THE MODERN SEAT BELT

Seat belts have been around for so long they sometimes don't get their due when people consider important advances in car safety. In fact, they are one of the most effective pieces of safety equipment in your car. The National Highway Traffic Safety Administration estimates that seat belts have saved more than 300,000 lives since 1960 and 15,000 in 2016 (the most recent year for which data is available). That compares with about 2,700 for airbags in 2016. Seat belts have evolved over the last seven decades from a basic strap to today's highly engineered mechanisms that do far more than most passengers realize.

PRETENSIONERS

These devices, on all driver and front passenger seats since 2008, have a mechanism that tightens the belt across a passenger's waist and/or chest in a crash. Upon impact, sensors—much like those used in airbags—trigger mechanisms that clamp down and take up belt slack. The occupant is held in place to reduce the risk that the body will come into contact with something in a crash. Pretensioners also ensure that occupants are in the safest position during airbag deployment.

INFLATABLE SEAT BELTS

Ford introduced the inflatable seat belt in rear seats of the 2011 Explorer SUV. It's a cross between a traditional seat belt and an airbag. In a crash, the belt inflates like a long, balloon-shaped airbag across the chest, increasing the contact surface area between the belt and the body more than five times. The bag remains inflated for several seconds. The technology may protect occupants better in certain crashes, such as rollovers.

LOAD LIMITERS

These are designed to reduce the potential for injury from a too-tight seat belt during a crash. The load limiter allows the seat belt to spool out a little bit at a time in a controlled way, reducing the force the belt applies to the passenger's chest. Volvo introduced load limiters in 1995; their use is now widespread.

vehicles by Sept. 2022. Even as many drivers wait to get these systems, just 44 percent of 2019 models have FCW and AEB as standard equipment.

Rob Molloy, the director of highway safety at the NTSB, considers the AEB rollout an example of slow government progress.

"The fact that they're moving forward now? Great," he says. "It took too long."

Molloy says the auto industry tends to focus on the next big thing, and so incremental advances take longer than they should, costing lives.

CR and other safety advocates say that the federal government should reconfigure crash tests to better reflect real-world dangers.

The auto industry supports continued efforts to improve crashworthiness and overall vehicle safety, says Wade Newton, a spokesman for the Alliance of Automobile Manufacturers. But he says customers could benefit from technology faster if compliance were voluntary rather than mandated through a typically lengthy rulemaking process.

Antilock brakes, electronic stability control, and lane departure warning are examples of lifesaving technology that automakers introduced on their own, Newton points out. "Automakers compete with one another to produce the safest vehicles," he says.

Consumer Reports rewards automakers that make lifesaving advances standard on all models. The most recent safety features that CR now factors into a vehicle's Overall Score include FCW and AEB. "All vehicles need these proven technologies," says Jake Fisher, the senior director of auto testing. "It's really a no-brainer, so we're rewarding companies that have added these systems."

PART TWO: THE ROADS

A poorly designed road can escalate a small error into a fatality. Traffic engineers know that a minor change in the sweep of a curve or an unclear road sign can have an impact on safety. For this reason, dozens of cities in the U.S. are completely rethinking road design with safety top of mind.

In the U.S., there are about 12 roadway deaths per 100,000 people, according to the World Health Organization. In much of Western Europe, it's under five. In Sweden, it's less than three.

Some communities are changing their street design and traffic laws. In 2014 New York was one of the first cities in the U.S. to adopt the Vision Zero concept, which calls for city planners to rethink everything about roads, bike lanes, and pedestrian routes. The goal is to eliminate all vehicle-related deaths.

"We want a safe system," says Leah Shahum, executive director of the Vision Zero Network, the nonprofit organization that connects these efforts in cities across the country.

Building on what has worked in other countries, Vision Zero pushes proven methods based on big-data analysis to identify and improve dangerous streets and intersections. For example:

› In Seattle, officials reduced the number of traffic lanes on Rainier Avenue. There have been no serious injuries or deaths on that dangerous stretch since the change, officials say.

› New York City officials tout the safety improvements to Queens Boulevard, which was transformed into a more pedestrian-friendly road with protected bike lanes and trees. Before the changes, more than seven pedestrians were killed or severely injured per mile on the road. There were no fatalities in the two years after the redesign began in 2015.

Projects like these often encounter resistance from residents who worry about longer commutes. And sometimes Vision Zero goals conflict with other priorities in urban areas. For example, some cities have found that lowering speed limits requires changing state law. "We generally know what works," Shahum says. "We're just not necessarily doing it."

Speed limits also play a key role in road safety, yet outside of cities, the trend has been to set them higher. During the 1970s energy crisis, the U.S. adopted a nationwide 55 mph limit. Signs reminded motorists that lower speeds saved lives. In the decades since, states have been allowed to set their own limits, and they've ratcheted upward.

Most states have a speed limit of 65 or 70 mph on highways. Seven states have adopted an 80-mph speed limit on some highways. It's 85 mph on a 40-mile stretch of Texas tollway between Austin and San Antonio. A California lawmaker recently proposed a West Coast autobahn with no speed limit.

Motorists have become used to driving faster than the posted speed limit no matter the number, says Russ Martin, director of policy and government relations at the Governors Highway Safety Association. Even though almost everyone recognizes that speeding isn't safe, they do it anyway. "The public is generally not behind us," he says.

PART THREE: THE DRIVER

It's no mystery that driver mistakes contribute to highway crashes and injuries. Drunken driving, speeding, and failing to wear a seat belt are three major reasons. Sometimes drivers engage in more than one of these risky behaviors at the same time. Each contributes to about 10,000 traffic deaths per year.

Human behavior remains the most common contributor to crashes, but it's also the hardest to change.

Men may be especially vulnerable; they're 1.5 times more likely than women to die in a crash, according to a CR analysis of NHTSA data.

ILLUSTRATION BASED ON PHOTOGRAPHY PROVIDED BY HUMANETICS

SEAT-BELT HISTORY HIGHLIGHTS

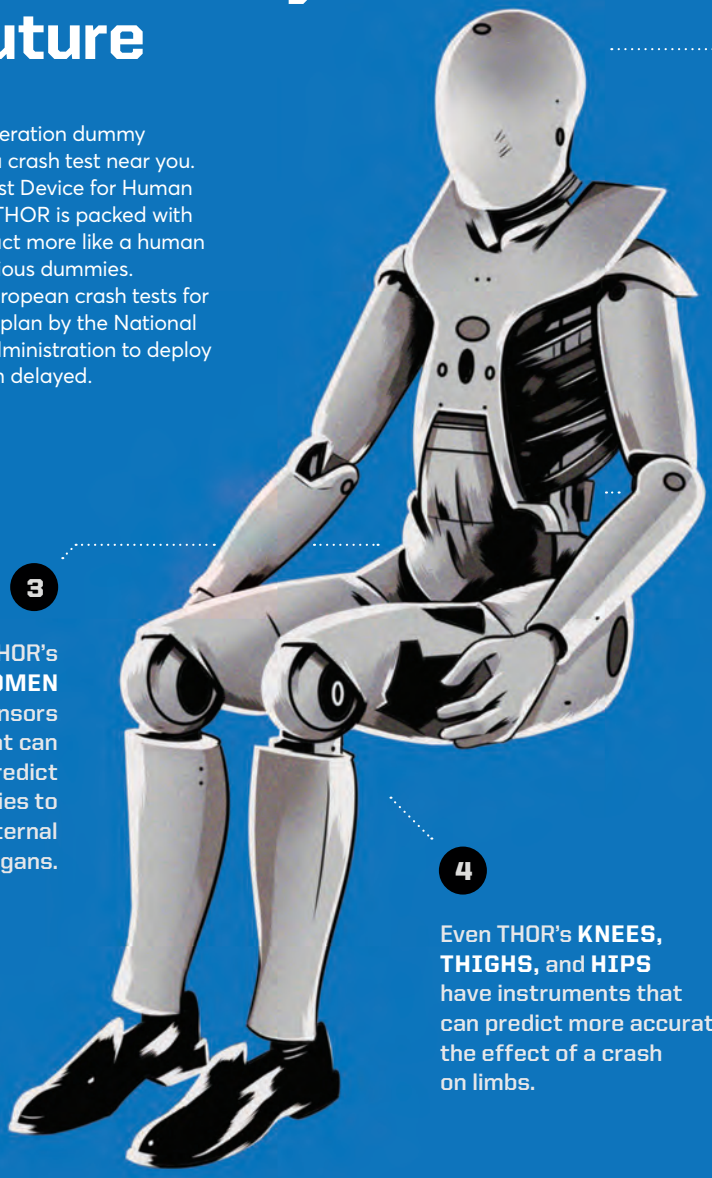
- **1885** The first known patent is given to Edward J. Claghorn. Early belts were designed mostly to keep people from falling out of cars.
- **1956** Consumer Reports finds that many cross-lap seat belts **fail basic safety** and durability tests.
- **1968** The new National Highway Safety Bureau **requires passenger cars to have lap belts** for each seat. Shoulder belts are required in front seats if crash tests prove they're necessary. Consumer Reports was a vocal supporter of making this mandatory.

Crash-Test Dummy of the Future

Meet THOR, the next-generation dummy perhaps coming soon to a crash test near you.

The name stands for Test Device for Human Occupant Restraint, and THOR is packed with sensors and designed to act more like a human body in a crash than previous dummies.

THOR will be used in European crash tests for the first time in 2020. The plan by the National Highway Traffic Safety Administration to deploy THOR in the U.S. has been delayed.



1

A better crash-test dummy with more sensors will help automakers predict more accurately how people might be killed or injured in crashes. They will use the test results to make safer cars, ones that reduce the risk of concussions or even fatal **HEAD** injuries.

2

The updated dummy has simulated **MUSCLES** and **BONES** that bend and twist, allowing it to move more like a human body than its predecessor, the Hybrid III.

3

THOR's **ABDOMEN** has sensors that can help predict injuries to internal organs.

4

Even THOR's **KNEES, THIGHS,** and **HIPS** have instruments that can predict more accurately the effect of a crash on limbs.

- **1972**

The federal government **requires shoulder belts** for the two front seats that are closest to the doors of passenger cars. Also, NHTSA strengthens the standard for a crash test, requiring seat belts to stay intact in a 30-mph frontal crash.

- **1973**

Because too few passengers are using separated shoulder belts and lap belts, **integrated belts**—where the lap and shoulder belts move together as one piece—are required in the outboard front seats of passenger cars.

- **1989**

Seats next to the rear doors are required to have **three-point lap/shoulder belts.**

- **2005**

Rear seats, including the middle, must have three-point lap/shoulder belts in cars and light trucks.

Ken Kolosh, manager of statistics for the National Safety Council, says we persist in accepting the status quo because we see it as normal. "We need to change our expectations," he says, "and break out of our complacency."

Safety advocates say the solutions are well-known. Seat-belt use, for example, is higher in states with strong enforcement. States with tougher drunken-driving laws have lower death rates. Most states ban driver texting, but the laws don't capture other ways people use their phones. The NTSB has called for a ban on the use of handheld devices while driving.

The fight to lower the death toll largely plays out in state capitals, and the political will needed to enact proven solutions isn't always there.

"We expect perfection, and we have so many fail-safes in pretty much every other transportation mode other than motor vehicles," says Jane Terry, senior director of government affairs at the National Safety Council. "Why don't we expect the same and have some of these fail-safes in the roadway transportation system?"

Some progress has been made. Mothers Against Drunk Driving and other groups have succeeded in focusing attention on dangerous behavior behind the wheel. In 1998 the federal government lowered its definition of impaired driving to a blood-alcohol level of 0.08, and established a grant program to encourage states to follow suit.

The NTSB and other safety advocates say the limit should be 0.05, the same as in many European countries. Research shows that even having just a few drinks can impair a driver. Utah recently became the first state to lower its standard to 0.05.

Restaurants and bars are among the groups that oppose lowering the standard. They argue that limited police resources will be wasted targeting light and moderate drinkers.

Distraction by smartphones, including calls and texting while driving, remains a safety concern. The NTSB recently called for a national campaign against distracted driving as one of its "Most Wanted" improvements to save lives.

NHTSA estimates there were 3,450 fatalities involving distracted drivers in 2016. NTSB officials say they've encountered distracted operators in all modes of transportation, including truck drivers, railroad engineers, and boat captains.

Many drivers think they can multitask while operating a car safely. But NTSB research shows that's a myth; humans can focus cognitive attention only on one thing at a time, says Bruce Landsberg, vice chairman of the NTSB. "We try to fix human nature here, but that's really hard."

As safety advocates push for new laws, their energy is sometimes spent fighting the repeal of existing statutes, says Cathy Chase of Advocates for Highway and Auto Safety.

Those opposed to such laws often argue that it's not the government's role to tell motorists how to behave. But in reality, there's a huge economic cost to traffic crashes: $242 billion each year, according to NHTSA. That amounts to an annual "crash tax" of $784 for every U.S. resident, Chase says. The cost includes property damage, subsidizing medical services, and economic loss from out-of-work employees.

Chase says that toughening safety standards is a long process. "Sometimes there's a very vocal–albeit minority–constituency that opposes some of these safety provisions," she says. Sometimes there are lawmakers blocking them. "These are multiyear efforts," Chase says. "They take a lot of fortitude."

BRINGING UP THE REAR

THE NEGLECTED BACKSEAT IS IN NEED OF A SAFETY MAKEOVER

Over several decades, crash tests and tougher regulations have focused on improving front-seat safety. Making backseat passengers safer? Not so much.

For years, automakers have designed safety systems so their vehicles pass specific crash tests that have focused on the front seat, where most people ride and most injuries and fatalities occur. Automakers want to grab top scores on those tests, conducted by the National Highway Traffic Safety Administration and the Insurance Institute for Highway Safety, an insurance industry-funded group. As a result, safety benefits have skewed in favor of front-seat passengers.

But an average of 1,799 rear-seat passengers died per year in crashes from 2009 through 2016, or about 12.5 percent of the total. That compares with an average of 19,846 per year for front-seat drivers and passengers. "Perhaps it's time to turn attention to the rear seats to make similar safety strides," says Jennifer Stockburger, director of operations at CR's Auto Test Center.

Prodded by demand, federal mandates, and the insurance industry, automakers have introduced life-saving innovations, including better seat belts, improved interior padding, laminated windshields, and airbags throughout the cabin. According to a 2012 NHTSA estimate, 613,501 lives have been saved because of safety advances. The number is even higher today.

When auto-safety regulation started in earnest in the 1960s, the front seat was a logical place to focus. In older cars, those occupants could be hurt in a lot of different ways: impaled by the steering wheel, injured when their head hit hard interior surfaces, or ejected through the windshield.

Now with Uber and Lyft—and ride-sharing in general—more passengers are sitting in the back, forcing experts to rethink some safety priorities. Some basic technologies aren't usually found in the rear, such as airbags, seat-belt pretensioners, load limiters, and head restraints large enough to help adults, says Stockburger. (See "Anatomy of the Modern Seat Belt," on page 55.)

American motorists also might be underestimating the need to wear belts in the backseat. A 2017 study of taxi riders in Las Vegas and San Francisco found that only about one-quarter buckled up.

Wade Newton, a spokesman for the Alliance of Automobile Manufacturers in Washington, D.C., the industry's largest trade group, says some automakers are working on boosting backseat safety. He says at least two companies offer inflatable shoulder belts, and others are developing pretensioners, load limiters, and even airbags that activate from a lap belt.

WE CONDUCT MORE THAN 50 TESTS ON EACH VEHICLE AT OUR 327-ACRE AUTO TEST CENTER. FOR COMPLETE ROAD TESTS, MEMBERS CAN GO TO **CR.ORG/CARS**.

ULTRA-LUXURY CARS

Audi A8

Exceptional in Almost Every Way

86
OVERALL SCORE

ROAD-TEST SCORE 96

HIGHS Ride, quietness, transmission, interior room, seat comfort, fit and finish

LOWS Controls require a learning curve, in-cabin storage

POWERTRAIN 335-hp, 3.0-liter 6-cylinder turbocharged engine; 8-speed automatic transmission; all-wheel drive

FUEL 21 mpg on premium fuel

PRICE AS TESTED $97,595

AUDI'S REDESIGNED A8 is a luxuriously appointed sedan with a roomy, limo-like rear seat. Add in a gem of a powertrain and excellent ride quality, and the result is a car that's among CR's top-rated ultra-luxury sedans.

At its heart is a turbocharged V6 engine that delivers power like a V8. It's paired with an eight-speed automatic transmission that shifts with the smoothness of a hot knife through butter. This combo makes the A8 quick yet frugal: Its 21 mpg overall is impressive for a large, all-wheel-drive sedan.

The standard air suspension keeps passengers blissfully unaware of rough pavement. The suspension and steering give the A8 the handling to carve up a winding road with gusto.

The interior is first-class, with front seats that blend comfortable cushions with firm support. The wide door openings make it easy to get in and out of the decadent and supportive rear seats, which have plenty of legroom. Rear passengers also get their own climate controls.

Audi's new infotainment system looks complex at first, but over time we found it logical and intuitive. We like how the touch screen vibrates to confirm each selection for any audio or climate task.

A few minor issues might vex buyers, such as skimpy cabin storage.

Forward collision warning and automatic emergency braking are standard, but blind spot warning and rear cross traffic warning are optional. These should be standard on a car that starts at $83,000.

LUXURY ENTRY-LEVEL SUVs

Cadillac XT4

Drives Well, Lacks Value

55
OVERALL SCORE

ROAD-TEST SCORE 78

HIGHS Handling, transmission, braking, fit and finish, front-seat comfort

LOWS Engine noise, ride, visibility, lacks standard safety features

POWERTRAIN 237-hp, 2.0-liter, 4-cylinder turbocharged engine; 9-speed automatic transmission; all-wheel drive

FUEL 23 mpg on premium fuel

PRICE AS TESTED $49,430

THE NEW XT4 scores well in CR's track tests, but its low predicted reliability rating and lack of standard advanced safety equipment drag down its Overall Score in a big way.

The engine and transmission promptly deliver strong power. The XT4 doesn't hesitate the way many turbo-powered vehicles tend to, and the nine-speed automatic transmission is smooth and responsive. But the engine's raspy, tinny sound and the overly stiff ride are out of place in a luxury SUV. In addition, the wide rear roof pillars hurt side and rear visibility.

We got 23 mpg overall on premium fuel in our tests, below the category average.

Still, it's not all bad news. Out on the road, the XT4 has limited body lean through turns and a poise that gives drivers confidence. Its compact dimensions make it easy to maneuver.

The Cadillac's interior feels well-constructed, with luxurious, high-quality materials. We also like the comfortable, supportive front seats. Their optional bottom cushion extension adds thigh support, which, along with the massage feature, makes the XT4 perfect for long trips.

It also doesn't take long to master the climate and infotainment system controls, which are an improvement over past Cadillac systems.

But we're not happy that the only way to get forward collision warning and automatic emergency braking is to pay for an options package. These important safety features aren't even available on the base trim.

PHOTOS: JOHN POWERS/CONSUMER REPORTS

MIDSIZED SUVs

Ford Edge

Improved Safety and Performance

78

OVERALL SCORE

ROAD-TEST SCORE 84

HIGHS Handling, quietness, braking, interior room, standard safety features

LOWS Driving position

POWERTRAIN 250-hp, 2.0-liter, 4-cylinder turbocharged engine; 8-speed automatic transmission; all-wheel drive

FUEL 22 mpg on regular fuel

PRICE AS TESTED $42,610

FORD HAS SHARPENED the performance of its Edge SUV for 2019, improving acceleration and fuel economy. The automaker has also made key safety features standard across the model range, a move that we applaud.

The standard 2.0-liter, four-cylinder turbo engine delivers even acceleration without the initial hesitation found in some rivals. The eight-speed automatic transmission isn't as smooth as the previous six-speed version, but altogether the powertrain shaves a full second off 0-60 mph sprints.

At the same time, fuel economy has improved by 1 mpg to the tune of 22 mpg overall, which is good for a midsized two-row SUV.

The driving experience makes the Edge feel like a more upscale vehicle. The ride has an underlying firmness, yet it manages bumps and rough surfaces. Its handling inspires confidence, with controlled body motion and responsive steering.

Getting in is easy thanks to the large door openings and low floor. The quiet, austere cabin is functional and dressed with soft-touch surfaces. The front seats are comfortable and supportive, but the driving position is a bit cockeyed because the left footrest is too close to the driver. The rear seat has abundant head- and legroom.

The Sync 3 touch-screen infotainment system is easy to use with its streamlined interface and big on-screen buttons. Both Android Auto and Apple CarPlay are compatible.

COMPACT SUVs

Toyota RAV4

Pioneering Model Misses the Mark

74

OVERALL SCORE

ROAD-TEST SCORE 72

HIGHS Fuel economy, standard safety features

LOWS Engine noise, ride, fit and finish

POWERTRAIN 203-hp, 2.5-liter, 4-cylinder engine; 8-speed automatic transmission; all-wheel drive

FUEL 27 mpg on regular fuel

PRICE AS TESTED $32,109

TOYOTA HAS LONG set a high standard for the compact SUV class with each generation of the RAV4—until now.

The RAV4 borrows styling cues from some of Toyota's truck-based vehicles to craft a more rugged-looking SUV. But that comes at the expense of interior and cargo room.

The engine is more powerful. Matched with an eight-speed automatic transmission, the RAV4 is quick, and frugal with gas. It's also more agile, with better handling and steering response.

But the list of woes is long. The engine is noisy, emitting irritating snarls with each press of the accelerator. Gear shifts could also be smoother. The ride is stiff and a little jumpy. The vehicle's higher ground clearance and lower roof make it more difficult to climb into. The rear seat sits low and doesn't provide adequate thigh support. The interior feels bland, bordering on cheap, made worse by hard plastic trim.

Visibility out of the windshield and to the sides is good, but the thick rear pillars create significant blind spots.

Most controls are clear and easy to use except for some tiny buttons around the infotainment screen, which are hard to see at a glance. And most door controls don't light up at night, making them a challenge to find. The infotainment system supports Apple CarPlay but not Android Auto.

There is a bright spot: Forward collision warning with pedestrian detection, automatic emergency braking, lane departure warning, and lane keeping assist all come standard.

PHOTOS: JOHN POWERS/CONSUMER REPORTS

Ratings › **All-Wheel Drive for Everyone** This month we present three SUVs and a luxury sedan. Below are models that span a wide range in price and size.

Recommended	Make & Model	Overall Score	Price As tested	Survey Results: Predicted reliability	Survey Results: Owner satisfaction	Safety: Front-crash prevention	Road-Test Results: Road-test score	Overall mpg	Acceleration 0-60 mph, sec.	Dry braking 60-0 mph, ft.	Avoidance-maneuver speed, mph	Routine handling	Ride	Noise	Seat comfort front/rear	Controls	Cargo volume, cu. ft./Luggage, suitcases+duffels
	COMPACT SUVs																
✓	**Subaru Forester** Premium	89	$29,341	^	^	Std./^^	90	28	9.2	130	53.0	^	^	!	^/^^	^^	36.5
✓	**Mazda CX-5** Touring (2.5L)	82	$29,530	^^	^	Std./!	80	24	8.6	133	54.0	^	^	^	^/^	^	30.5
✓	**Honda CR-V** EX (1.5T)	77	$28,935	^	^	Opt.	82	28	8.2	137	52.0	^	!	^	^/^^	^	36.0
✓	**Toyota RAV4** XLE (2.5L)	74	$32,109	^	^	Std./^^	72	27	8.3	131	54.0	^	!	v	^/^	^	30.5
✓	**Nissan Rogue** SV	74	$29,920	^	v	Std./^^	74	24	9.5	134	54.0	!	^	!	!/^	^^	31.5
✓	**Kia Sportage** LX (2.4L)	72	$26,720	!	!	Opt.	78	23	9.6	128	52.5	^	!	!	^/^	^^	29.5
	Ford Escape SE (1.5T)	67	$29,630	!	!	Opt.	75	23	10.1	132	50.0	^	^	^	!/!	^^	34.0
	Volkswagen Tiguan SE	67	$31,645	v	!	Opt.	84	25	10.3	131	52.0	^	^	^	^/^^	^	33.0
	Chevrolet Equinox LT (1.5T)	66	$33,730	!	!	Opt.	78	25	9.6	132	53.0	^	^	^	^/^	^^	32.0
	Jeep Cherokee Limited (2.0T)	65	$37,655	!	!	Opt.	68	23	7.5	129	53.0	!	!	!	^/^	^	31.0
	Hyundai Tucson SEL (2.4L)	64	$28,530	v	v	Std./^	75	22	9.6	130	52.5	^	!	^	^/^	^^	29.5
	MIDSIZED SUVs (2-ROW)																
✓	**Hyundai Santa Fe** Limited (2.0T)	80	$37,200	^	^	Std./^^	80	21	8.7	136	52.0	^	!	^	^/^^	^^	35.5
✓	**Ford Edge** SEL (2.0 EcoBoost)	78	$42,610	!	!	Std./^^	84	22	7.7	129	52.0	^	^	^	^/^^	^	39.0
✓	**Nissan Murano** SL	77	$42,065	^	!	Std./^	77	21	7.7	131	50.5	!	^	^	^/^	^	33.5
	Jeep Grand Cherokee Limited (V6)	62	$41,375	v	^	Opt.	80	18	8.0	134	50.0	!	^	^	^^/^	^^	36.5
	LUXURY ENTRY-LEVEL SUVs																
✓	**Mini Cooper Countryman** S	77	$39,535	^	^	Opt.	82	25	8.3	120	53.0	^^	!	!	^^/^	!	23.5
✓	**Audi Q3** Premium Plus	74	$40,125	^	!	NA	77	22	8.4	132	51.5	^	^	^	^/^	!	24.5
	Mercedes-Benz GLA250	64	$42,210	^	v	Std./!	70	26	6.9	128	54.5	^	!	!	^/v	v	23.0
	BMW X2 xDrive28i	64	$45,895	v	!	Std./^	77	25	8.0	134	52.5	^	!	^	^^/!	^	23.5
	Infiniti QX30 Essential	62	$43,745	!	vv	Std./^	71	25	7.1	122	57.0	^	!	!	^/v	!	21.5
	Volvo XC40 T5 Momentum	59	$41,510	v	^	Std./^^	71	24	7.3	132	54.0	^	!	^	^^/^	vv	25.5
	Cadillac XT4 Premium Luxury	55	$49,430	vv	^	Opt.	78	23	7.6	128	55.0	^	!	!	^^/!	^	26.5
	Jaguar E-Pace S	43	$48,070	vv	!	Std./^	69	21	7.9	129	54.0	^	!	^	^/^	!	21.5
	ULTRA-LUXURY CARS																
✓	**Mercedes-Benz S550** (4MATIC)	87	$114,475	^	^	Std./^^	96	18	5.1	128	51.0	^	^^	^^	^^/^^	v	2+3
✓	**BMW 750i** xDrive	87	$110,645	!	^	Std./^	99	21	5.3	131	52.5	^	^^	^^	^^/^^	!	2+4
✓	**Audi A8** 3.0T	86	$97,595	!	^	Std./^^	96	21	6.1	133	53.5	^	^^	^^	^^/^^	!	2+3
✓	**Genesis G90** Premium (3.3T, AWD)	81	$71,550	!	^^	Std./^^	89	18	6.0	130	52.0	^	^^	^^	^^/^^	^	3+0
	Tesla Model S 100D	78	$100,200	v	^^	Std./^^	97	102*	5.1	129	54.0	^^	^	^^	^/!	v	4+3
	Lexus LS 500 (AWD)	73	$103,899	^	^	Std./^^	72	20	6.0	136	51.5	^	^	^^	^^/^	vv	2+1

HOW WE TEST: Recommended models did well in our **Overall Score,** which factors in **Road-Test Results, Predicted reliability, Owner satisfaction,** and **Safety,** which includes crash-test results and the availability of front-crash prevention features, such as forward collision warning and automatic emergency braking, pedestrian detection, and blind spot warning. NA means no such safety system is offered; Opt. means it's available but not as standard equipment. We also rate models from ! to ^^ based on how many advanced safety features come standard. We deduct points if a model's gear selector lacks fail-safes. All-Access or Digital members can go to CR.org/cars for complete ratings.

vv v ! ^ ^^ WORSE — BETTER | ✓ RECOMMENDED

*Indicates miles-per-gallon equivalent (MPGe).

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It's raining gaffes and dogs this month

See Spot's Fence

Um, maybe the dogs can't see it?
Submitted by Victor Intintolo, Springfield, PA

Forks for Fido?

Those mutts must have great manners if they can use cutlery.
Submitted by Gail Schechter, Skokie, IL

Due to health codes, our plates and silverware are not for animal use. Please ask your server for dog friendly plates and utensils

Holy Hairball!

We discovered the cause of your pet-hair problem. There's a retriever in your washer! *Submitted by Ladene Nelson, Jamestown, ND*

That's Some Furry Logic

Guess this means that if you own a petite pooch, there's no welcome mat out here.
Submitted by Paul Erikson, Portland, OR

Pet-friendly
Settle into the best dog
Portland, Oregon. With a
center, pet owners are surro
dog areas and walking trails like th
paths at nearby Wallace City Park.
Fees
One to six nights: $75 nonrefundable fee. Seven to 30 nights: $75 nonrefundable pet fee, plus an additional $100 cleaning fee applies.
Weight Limits
Dogs are permitted as long they weigh 50 pounds. Two dogs are allowed if their combined weight doesn't exceed 75 pounds.
Weight Limits
Dogs are permitted as long they weigh 50 pounds. Two dogs are allowed if their combined weight doesn't exceed 75 pounds.

SHARE

Be on the lookout for goofs and glitches like these. Share them with us—by email at SellingIt@cro.consumer.org or by mail to Selling It, Consumer Reports, 101 Truman Ave., Yonkers, NY 10703—and we might publish yours. Please include key information, such as the publication's name and date.

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CRM95BBS

CANADA

Canadian information in 4-page insert

Canada Extra

Autos **32a**

Recalls **32b**

How to Use the Canada Extra Section

EVERY MONTH, Canada Extra provides Canadian pricing and availability information about products tested for that issue. The ratings in this section are based on this month's reports, but they narrow your choices to the products that are sold in Canada.

You can use this section in either of two ways: Start with the main report, read about the products that interest you, and turn to this section to find whether they're sold–and for what price–in Canada. Or start here, find products sold in Canada whose price and overall score appear promising, and read more about them in the main report and full ratings chart; page numbers appear with each Canadian report. (For some products, the Canadian model designation differs slightly from the one used in the U.S.)

In most cases, the prices we list here are the approximate retail in Canadian dollars; manufacturers' list prices are indicated by an asterisk (*). The symbols shown at right identify CR Best Buys or recommended products in the U.S. ratings. "NA" in a chart means that information wasn't available from the manufacturer. We include, in the Contact Info list, the manufacturer's web address in Canada so that you can go online to get information on a model you can't find in the stores. (Many products that aren't available in Canadian stores can be bought online.)

We appreciate your support, but we don't take it for granted. Please write to **CanadaExtra@cu.consumer.org** and tell us what you think. We can't reply to every email or implement every suggestion, but with your help we'll try to keep growing to serve your needs.

CR Best Buy
Recommended models that offer the best combination of performance and price.

Recommended
Models that perform well and stand out for reasons we note.

Autos

All of the tested vehicles are available in Canada. **Report and ratings, pages 59-61**

		Acceleration (sec.)				Fuel Economy (liters per 100 km)		
Make & Model	**Price Range**	**0-50 km/h**	**0-100 km/h**	**80-100 km/h**	**500 Meters**	**City Driving**	**Highway Driving**	**Overall**
COMPACT SUV								
Toyota RAV4	**$27,990–$42,090**	3.2	8.9	2.8	18.9	12.7	6.2	8.6
MIDSIZED SUV (2-ROW)								
Ford Edge	**$36,099–$49,199**	3.0	8.1	2.4	18.4	15.8	7.6	10.7
LUXURY ENTRY-LEVEL SUV								
Cadillac XT4	**$34,400–$42,795**	3.2	8.0	2.0	18.2	15.1	7.6	10.4
ULTRA-LUXURY CAR								
Audi A8	**$97,800–$101,050**	2.5	6.4	1.8	16.6	17.6	7.2	11.1

Toyota RAV4
PRICE AS TESTED
$32,109 (U.S.)
74 OVERALL SCORE

Ford Edge
PRICE AS TESTED
$42,610 (U.S.)
78 OVERALL SCORE

Cadillac XT4
PRICE AS TESTED
$49,430 (U.S.)
55 OVERALL SCORE

Audi A8
PRICE AS TESTED
$97,595 (U.S.)
86 OVERALL SCORE

RECALLS

FORD MUSTANG

2005-2014 FORD, MERCURY, AND LINCOLN MODELS

On certain vehicles, environmental conditions may eventually degrade the propellant contained in the passenger-front airbag, causing the airbag to deploy with more force than normal. If the airbag inflator ruptures, fragments could be propelled toward vehicle occupants.
Affected: 346,392 2005-2006 Ford GT, 2005-2014 Mustang, 2006-2012 Fusion, 2007-2010 Edge, and 2007-2011 Ranger; 2006-2011 Mercury Milan; and 2006 Lincoln Zephyr, 2006-2010 MKX, and 2007-2012 MKZ vehicles.
What to do: Owners will be notified by mail and instructed to take their vehicle to a dealer to have the passenger-front airbag inflator replaced. Notes: The Canadian climate results in the propellant degrading slowly. This recall is being conducted as a precaution to address future risk. It is expected that all airbag inflators will be replaced before their function would be affected. This recall supersedes recalls 2016-347 (Ford Safety Improvement Program 16S26), 2017-024 (Ford Recall 17S01), and 2018-035 (Ford Recall 18S01). Vehicles repaired under the previous recalls do not require repair under this recall.

2007-2011 HONDA CR-V

On certain vehicles, the rear frame could rust, allowing a rear-trailing arm to separate from the vehicle and result in loss of control. This recall applies to vehicles originally sold or currently registered in areas of heavy road salt usage (Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland & Labrador).
Affected: 83,953 vehicles.
What to do: The company will notify owners by mail. Owners will be instructed to take their vehicle to a dealer for an inspection of the rear frame stiffeners. If the vehicle passes the inspection, dealers will apply corrosion protection. For a vehicle that does not pass the inspection, Honda will repurchase the vehicle. In the event the repurchase is declined by an owner, a secondary inspection and body shop repair method may be possible.

2007-2014 BMW MODELS

On certain vehicles, environmental conditions may eventually degrade the propellant contained in the passenger-front airbag, causing the airbag to deploy with more force than normal. If the airbag inflator ruptures, fragments could be propelled toward vehicle occupants.
Affected: 20,532 2007-2013 X5 and 2008-2014 X6 vehicles.
What to do: Owners will be notified by mail and instructed to take their vehicle to a dealer to have the passenger-front airbag inflator replaced. Note: The Canadian climate results in the propellant degrading slowly. This recall is being conducted as a precaution to address future risk. It is expected that all airbag inflators will be replaced before their function would be affected.

2010-2014 SUBARU MODELS

On certain vehicles, environmental conditions may eventually degrade the propellant contained in the passenger-front airbag, causing the airbag to deploy with more force than normal. If the airbag inflator ruptures, fragments could be propelled toward vehicle occupants.
Affected: 102,110 2010-2011 Impreza, 2010-2013 Forester, and 2010-2014 Impreza WRX/STi, Impreza WRX, Legacy, Outback, and Tribeca vehicles.
What to do: Owners will be notified by mail and instructed to take their vehicle to a dealer to have the passenger-front airbag inflator replaced. Note: The Canadian climate results in the propellant degrading slowly. This recall is being conducted as a precaution to address future risk. It is expected that all airbag inflators will be replaced before their function would be affected.

2010-2017 LEXUS, SCION, AND TOYOTA MODELS

On certain vehicles, environmental conditions may eventually degrade the propellant contained in the passenger-front airbag, causing the airbag to deploy with more force than normal. If the airbag inflator ruptures, fragments could be propelled toward vehicle occupants.
Affected: 376,282 2010-2012 Lexus ES 350, 2010-2013 IS 250 and IS 350, 2010-2014 IS F, 2010-2015 IS 250C and IS 350C, and 2010-2017 GX 460; 2010-2015 Scion XB; and 2010-2013 Toyota Corolla, 2010-2014 Matrix, 2010-2016 4Runner, and 2011-2014 Sienna vehicles.
What to do: Owners will be notified by mail and instructed to take their vehicle to a dealer to have the passenger-front airbag inflator replaced. Note: The Canadian climate results in the propellant degrading slowly. This recall is being conducted as a

precaution to address future risk. It is expected that all airbag inflators will be replaced before their function would be affected.

2010-2017 MERCEDES-BENZ MODELS

On certain vehicles, environmental conditions may eventually degrade the propellant contained in the passenger-front airbag, causing the airbag to deploy with more force than normal. If the airbag inflator ruptures, fragments could be propelled toward vehicle occupants.
Affected: 87,317 2010-2015 AMG SLS and 2010-2017 C-Class, E-Class, and GLK-Class vehicles.
What to do: Owners will be notified by mail and instructed to take their vehicle to a dealer to have the passenger-front airbag inflator replaced.
Note: The Canadian climate results in the propellant degrading slowly. This recall is being conducted as a precaution to address future risk. It is expected that all airbag inflators will be replaced before their function would be affected.

2011-2014 HYUNDAI MODELS

When repairs were completed under recall campaign 2015-428 (Hyundai #R0101) or 2017197 (Hyundai #R0130), the high-pressure fuel pipe may not have been properly installed on the fuel pump outlet. A fuel leak could occur, increasing the risk of fire if the pipe was damaged, misaligned, or improperly torqued during the recall repair.
Affected: 7,500 2011-2014 Sonata and 2013-2014 Santa Fe Sport vehicles.
What to do: The company will notify owners by mail. Owners will be instructed to take their vehicle to a dealer for an inspection. If fuel leakage is detected, the fuel pipe will be replaced with a new one.

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2011-2016 MERCEDES-BENZ MODELS

On certain vehicles originally sold or currently registered in areas of heavy road salt usage during winter months (Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland & Labrador), the bolts that attach the electric power steering assist motor to the steering gear housing may corrode and break, causing a loss of power steering assist.
Affected: 21,500 C-Class, CLS-Class, E-Class, GLC-Class, GLE-Class, GLK-Class, ML-Class, and S-Class vehicles.
What to do: Dealers will replace the mounting bolts and apply a corrosion protection coating to the gear housing and bolts. If the bolts cannot be removed, a replacement steering gear will be installed.

2013-2017 RAM MODELS

On certain trucks, a nut in the steering system could loosen and cause a loss of steering control. This problem affects trucks equipped with a 4x4-style steering system.
Affected: 62,700 2013-2017 3500 and 2014-2017 2500 vehicles.
What to do: The company will notify owners by mail. Owners will be instructed to take their vehicle to a dealer to inspect the outboard steering linkage jam nut. If the nut is properly tightened, it will be welded to the adjuster sleeve. If the nut is not properly tightened, the drag link assembly will be replaced.

2014-2016 CHRYSLER, DODGE, AND JEEP MODELS

On certain vehicles, environmental conditions may eventually degrade the propellant contained in the passenger-front airbag, causing the airbag to deploy with more force than normal. If the airbag inflator ruptures, fragments could be propelled toward vehicle occupants.
Affected: 79,000 2014-2015 Chrysler 300, 2014 Dodge Challenger and 2014-2015 Charger, and 2014-2016 Jeep Wrangler vehicles.
What to do: Owners will be notified by mail and instructed to take their vehicle to a dealer to have the passenger-front airbag inflator replaced.
Note: The Canadian climate results in the propellant degrading slowly. This recall is being conducted as a precaution to address future risk. It is expected that all airbag inflators will be replaced before their function would be affected.

2015-2017 NISSAN ALTIMA

On certain vehicles, the latch-lock cable may have been incorrectly routed in the path of the rear-door window regulator, causing the rear-passenger door to unlatch and open when the window is lowered.
Affected: 7,493 vehicles.
What to do: Dealers will inspect the vehicle and add a wire harness clip to the door panel to reroute the cables through and/or replace the rear-door latch-lock cable assembly as necessary.
Note: This recall supersedes recall 2017-030. Vehicles repaired as part of the previous recall will require re-inspection and repair.

2015-2017 VOLKSWAGEN AND AUDI MODELS

On certain vehicles, environmental conditions may eventually degrade the propellant contained in the driver-front airbag,

MERCEDES-BENZ GLC-300

RECALLS *Continued*

causing the airbag to deploy with more force than normal. If the airbag inflator ruptures, fragments could be propelled toward vehicle occupants.
Affected: 9,527 2015 Volkswagen EOS and Passat, and 2015-2017 CC; and 2016-2017 Audi TT and 2017 R8 vehicles.
What to do: Owners will be notified by mail and instructed to take their vehicle to a dealer to have the driver-front airbag inflator replaced.
Note: The Canadian climate results in the propellant degrading slowly. This recall is being conducted as a precaution to address future risk. It is expected that all airbag inflators will be replaced before their function would be affected.

2015-2018 AUDI MODELS

On certain vehicles, a small amount of fuel may leak from one or both fuel rails, creating a risk of fire.
Affected: 8,631 2015-2017 A8, 2016-2017 A6 and A7, and 2017-2018 Q7 vehicles.
What to do: The company will notify owners by mail. Owners will be instructed to take their vehicle to a dealer to have the left and right fuel rails replaced.

2015-2019 FORD MODELS

On certain vehicles equipped with an engine block heater, water and corrosive contaminants may damage and corrode the block heater cable's splice connector, causing a short circuit and increased risk of fire. The block heater could become inoperative, and household breakers or GFCI-equipped outlets could be tripped while the block heater is plugged in.
Affected: 463,760 2015-2019 F150 and 2017-2019 Super Duty vehicles.
What to do: Dealers will inspect and replace the block heater cable if it is found damaged or corroded. If there are no signs of damage or corrosion, dealers will pack the terminal connector with dielectric grease and reconnect it.
Note: Ford recommends that owners not use the block heater until an inspection has been completed. Please see the Ford recall notification letter for further information.

VOLVO XC60

2017-2019 HONDA RIDGELINE

During a car wash, if water containing certain car wash detergents drains from the truck bed onto the top of the fuel pump, it could cause the fuel pump to crack and create a fuel leak, leading to a potential risk of fire.
Affected: 13,289 vehicles.
What to do: The company will notify owners by mail. Owners will be instructed to take their vehicle to a dealer for an inspection of the fuel pump. If the fuel pump is cracked, it will be replaced. Dealers will also install a fuel pump cover.
Note: Owners who smell a fuel odor or believe there is a fuel leak should contact a dealer immediately.

2018 SUBARU MODELS

Certain vehicles equipped with a built-in navigation system may not comply with the requirements of Canada Motor Vehicle Safety Standard (CMVSS) 111 - Mirrors and Rear Visibility Systems. Due to a software problem, the rearview image may not be displayed on the center display screen when the vehicle is put in reverse.
Affected: 5,309 BRZ, Legacy, and Outback vehicles.
What to do: Dealers will reprogram the head unit software.

2018-2019 VOLVO XC60

On certain vehicles equipped with a power-operated tailgate, the tailgate lifting arms could freeze and fail. This could create noise and cause the tailgate to stop working. The tailgate lifting arms could separate, and a spring may be projected rearward.
Affected: 3,816 vehicles.
What to do: The company will notify owners by mail. Owners will be advised to take their vehicle to a dealer for replacement of the tailgate lifting arms.

2019 RAM 1500

On some vehicles equipped with adjustable pedals, the brake pedal could detach when it is adjusted. This could cause a loss of brakes.
Affected: 22,095 vehicles.
What to do: The company will notify owners by mail. Owners will be instructed to take their vehicle to a dealer to repair the adjustable pedal assembly. Drivers should not adjust the pedals until the vehicle is fixed. The pedals should never be adjusted while driving.